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From Birdsong to Rotor Slap: The Sonic Experience of
American National Parks

Thesis submitted for the degree of PhD in American Studies

Stuart J. Barker

University of Kent: Centre for American Studies

Supervisor: Dr John Wills

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Abstract

This thesis explores how Euro-American settlers, explorers, tourists and to a more limited extent Native Americans, have listened to and interpreted natural sounds within the United States. It examines how Americans gained knowledge of their environment through the sounds that they listened to, and argues that the aural sense was pivotal to their understanding of these places. Primarily, this thesis investigates these experiences through case studies of two national parks, the Grand Canyon and Yosemite. I explore how the soundscapes of these two parks evolved – from sounding predominantly natural at the mid to end of the nineteenth century to having the sonic imprint of tourism and mechanisation in the twentieth century. The effect that noise pollution had on visitors’ perceptions of these places is examined and I argue that human-made noise altered their sense of place. John Muir’s engagement with natural sounds and his promotion of national parks as a sonic experience are detailed. I argue that Muir rated the aural sense alongside the visual in his enjoyment of nature. This thesis offers a new approach to environmental and national park scholarship, which have both previously failed to explain or even explore the human experience of natural spaces through the aural sense in any depth. I argue that listening was core to the national park experience and challenge the visuocentric approach to both environmental and national park history. The following work also expands on previous aural history scholarship that has largely centred on urban soundscapes.

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Introduction: Aural History & the National Parks

In 1909, Sarah Dorn travelled from Cincinnati, Ohio, to visit the Grand Canyon of the Colorado. She stayed at the luxurious El Tovar Hotel, opened by the Fred Harvey Company just four years previously, located on the Canyon's South Rim. The hotel encouraged guests to comment on their Canyon experience in a large leather-bound register titled *Impressions of the Grand Canyon*. It was only a few steps from the hotel to the rim from where a panoramic vista of the vast abyss could be enjoyed. Yet, Dorn did not comment on what she saw, but what she heard. She required only five words to describe her impression of the Grand Canyon – 'Its silent grandeur, complete silence.'¹ Dorn was not alone in describing the Canyon through the aural sense. Guests of the El Tovar who wrote their impressions of the place in the register between 1905 and 1912 repeatedly described the Grand Canyon as a sonic experience.

The comments made by these tourists at the Grand Canyon were part of a wider appreciation for natural sounds. John Muir, the foremost influential commentator on American national parks and natural spaces, consistently described the natural sounds he heard on his travels. Yosemite's Giant Sequoias were to him as much of an aural experience as they were a visual one. 'The faint lisp of snowflakes as they alight is one of the smallest sounds mortals can hear. The sound

¹ Northern Arizona University (NAU), Flagstaff, Special Collections & Archives, Fred Harvey, Series 1, Box 20, El Tovar Guest Register, 'Impressions of the Grand Canyon' 1909.

of falling Sequoia seeds, even when they happen to strike on flat leaves or flakes of bark, is about as faint,' Muir wrote, 'very different is the bumping and thudding of the falling cones. Most of them are cut off by the Douglas squirrel and stored for the sake of the seeds, {...} nearly all the ripe cones fall in a steady pattering, bumping shower.'² In his books, journals and magazine articles, Muir repeatedly described the richly textured soundscapes of the American wilderness. He noted the sounds made by grasshoppers, mice, birds, waterfalls, thunderstorms and countless other aural sources that rewarded his readers with an enhanced sense of place.

While both Dorn and Muir wrote positively of North America's natural soundscape, their colonial predecessors often experienced the continent's natural sounds through a combination of fear and trepidation. They found the vast expanse of the Great Plains and dense virgin forests eerily quiet and disturbing spaces. Pioneering Euro-American travelers described the American West as a silent space that lacked aural spatiality and familiar cultural sounds. Sonically they felt displaced and longed to hear aural reminders of home. When the howl of wolves and other wild animals were heard, European migrants interpreted these sounds through traditional belief systems as the cries of evil forces. By comparison, tourists who visited the national parks in the early-1900s felt spiritually moved by the natural sounds that they heard in these places. To them winds sounded as if they were the voice of God and the musical tones of creeks, rivers and waterfalls chimed like choirs singing hymns to the accompaniment of the church organ.

² John Muir, *Our National Parks* (San Francisco: Sierra Club Books, 1991), p. 205.

As industrialisation swept across the nation in the latter half of the nineteenth century and urban areas succumbed to mechanised noise, wild areas were promoted as a sonic bulwark to the advance of noisy machines. Sound was a major consideration for Benton MacKaye in 1921 when he proposed the idea of a long distance hiking trail in the East, known as the Appalachian Trail. The wilderness footpath, MacKaye proposed, was an escape from the 'auto-horn,' and promised a 'noise-proof' experience.³ Similarly Clinton C. Clarke, who established the Pacific Crest Trail during the 1930s, described wilderness as an 'environment of solitude' away from the 'sounds of a mechanically disturbed Nature.'⁴ National Parks were branded and sold as islands of tranquillity in a sea of industrial noise. Muir, who actively promoted recreation in the parks, claimed Yosemite provided a 'refuge from the roar and dust and weary, nervous, wasting work of the lowlands.'⁵ Since the dawn of industrialisation Americans have journeyed into wild places to escape the noise of machines and enjoy the sounds of nature.

Rather than offer perfect islands of natural sounds, the soundscapes of both the Grand Canyon and Yosemite, like their landscapes, have been altered through human activity since the early-days of nature tourism in the United States. Tourists brought noise with them alongside their tents and cameras that overarched natural sounds and altered their sense of place. At the beginning of the twentieth century automobile noise was added to the natural sounds that rang out from Yosemite's

³ Paul Sutter, 'New Deal Conservation: A View from the Wilderness', in *FDR and the Environment*, ed. by Henry L. Henderson and David B. Woolner (New York: Palgrave Macmillan, 2005), pp. 87-106 (p. 90).

⁴ Clinton C. Clarke, *The Pacific Crest Trailway* (Pasadena: [n.pub], 1945), p. 11.

⁵ Linnie Marsh Wolfe, *John of the Mountains: The Unpublished Journals of John Muir* (Madison: University of Wisconsin Press, 1979), pp. 351-352.

meadows. Locations that were considered natural, or even wild, due to their sonic identity, came to be thought of as under human control. Once mechanised noise entered the parks, solitude became harder to find. Boarding houses and the construction of national park 'villages' brought the noise of urban spaces into natural places; in Yosemite the sounds of baseball, music and fireworks were heard alongside those of bighorn sheep, cicadas and waterfalls.

Human-made noise made previously wild and seemingly empty spaces feel crowded and decidedly non-natural. Hikers' sense of solitude in the backcountry of the Grand Canyon since the late-1960s has been obliterated by the noise of air tours. Hiking for days to escape 'civilization,' backcountry users were reminded that humans and modern life were only a few minutes away by helicopter. Urbanites who travelled to Yosemite Valley during the late 1960s seeking tranquility were surprised and angered by hippies who blasted Jefferson Airplane out of audio players. Even in the most iconic spaces of the United States it seemed impossible to escape human-made noise. The view from Tunnel View down into Yosemite Valley still looked natural in the post-World War II era, but surrounded by automobiles, radios playing music and the click of cameras it sounded anything but natural. As the cultural geographer Yi-Fu Tuan argued, in the presence of others 'a point is reached when the feeling of space yields to its opposite – crowding.'⁶ Though Tuan referred to the visual sense, the occurrence of human-made noise generated a feeling of being in the presence of others, even in remote wilderness and backcountry areas. This noise cognitively removed visitors from nature and placed them within a human

⁶ Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), p. 59.

space. The last strongholds of nature sounds were lost by the end of the twentieth century. Dorn would have been struck by the changes wrought on the Grand Canyon's soundscape by a century of tourism and technological change.

The following work explores how people have experienced the sounds of wild and protected natural spaces in the United States of America. Despite the importance visitors have placed on listening to natural sounds in locations such as the Grand Canyon, historians of American national parks and the natural environment have remained largely silent on the aural experience of nature. This thesis investigates how explorers, settlers, tourists and activists have listened to and interpreted natural sounds and argues that the aural sense has been central to the experience and understanding of natural areas and national parks in the United States. The development of human-made noise in natural areas is equally charted, and how unwanted sound has undermined peoples' long-term sense of place. I also consider how parks have been primarily promoted as a visual experience in the pursuit of profit, and the noise pollution that these activities have brought into the parks. Finally the campaigns that have been fought to restore natural quiet are surveyed. The purpose of this work is to place the aural experience into the foreground of discussion of American national parks and natural areas and in the process put nature's voice back into the parks. This thesis is located within the disciplines of environmental history and the history of the senses. It also offers a new perspective on the American national park experience.

This thesis questions the visual focus of academia that has dominated historical approaches. The argument that sight is the foremost important sense has

found many adherents. 'We live in a visual world,' the geographer D. C. D. Pocock claimed in 1981, 'our environment consists of outward and visible expressions of our culture, in the transmission of which the visual has always played a prime role, be it building, ritual, dress – or blackboard.'⁷ Anthony Synnott argued in his work of 2002, *The Body Social*, that sight has gained a reputation for representing fact, 'seeing is believing,' 'the camera never lies' and 'I will believe it when I see it,' are common expressions that have reinforced the primacy of sight.⁸ Mark Smith wrote that the visual sense has dominated the humanities and in particular history, and that this has been detrimental to historical studies. Smith stated that seeing was only one way in which people experienced their worlds and lives. 'Historians,' he argued, 'rarely consider in any explicit or systematic way the other four senses, and so a good deal of what we know about the historical experience is really a history of what people saw.'⁹ This has meant, Smith added, that 'we understand the past in one-fifth of its texture and scope.'¹⁰ Through exploring what people heard in natural areas, how they interpreted sounds and the effect that listening had on their experiences of these places, our understanding of the past is enriched.

Smith's call for a non-visuocentric methodology to understanding past experiences is central to the following study. In questioning the visual focus of historical writing, progressive scholars during the 1970s called for a more diverse sensory approach to the discipline. What emerged was the history of the senses. In

⁷ D. C. D. Pocock, 'Sight and Knowledge', *Transactions of the Institute of Geographers*, 6.4 (1981), 385-393 (p. 385).

⁸ Anthony Synnott, *The Body Social* (London: Taylor & Francis, 2002), p. 207.

⁹ Mark Smith, *Listening to Nineteenth-Century America* (Chapel Hill: The University of North Carolina Press, 2001), p. 6.

¹⁰ *Ibid.*

2014 David Howes and Constance Classen defined the new discipline as a ‘cultural approach to the study of the senses and a sensory approach to the study of culture.’¹¹ The Annales School was identified as at the forefront of research that considered wider historical sensory experiences. Alain Corbin stated that Lucien Febvre called for a ‘history of the sensibilities’ to analyse the ‘modalities of perception.’¹² Corbin identified Guy Thullier’s 1977 work on the sounds of the Nivernais region of France as an example of a new methodological approach to history. ‘You could almost hear as you read his book,’ Corbin claimed, ‘the ringing of the hammer on the anvil, the heavy thud of the wooden mallet wielded by the cartwright, the insistent presence of bells and the whinny of horses in an aural environment where the noise of the engine or amplifier was unknown.’¹³ However, Corbin argued that Thullier failed to explore the meaning of these sounds on villagers and it was if the ‘village of the nineteenth-century did not condition his hearing, and so his listening.’¹⁴ Sound studies needed to go further and analyse the impact that sounds had on people – this is the approach that I have taken.

Sensory studies added a new dimension to historical studies and furthered understanding of both culture and society. Corbin’s 1986 work, *The Foul and the Fragrant: Odour and the French Social Imagination*, explored the associations between aroma and French society. Unpleasant smells, Corbin argued, were

¹¹ David Howes & Constance Classen, *Ways of Sensing: Understanding the Senses in Society* (New York: Routledge, 2014), p. 13.

¹² Alain Corbin, ‘Charting the Cultural Histories of the Senses’, in *Empire of the Senses: The Sensual Culture Reader*, ed. by David Howes (Oxford: Berg, 2005), pp. 128-139 (p. 128).

¹³ Alain Corbin, *Time, Desire and Horror: Towards a History of the Senses* (Cambridge: Polity Press, 1995), p. 185.

¹⁴ *Ibid.*

associated with lower classes while perfumed aromas were connected to elites.¹⁵ In *A History of the Senses: From Antiquity to Cyberspace*, Robert Jütte's 2005 study noted how the Nazi propaganda machine politicised smells and portrayed Jews as filthy and foul smelling.¹⁶ Jütte explored the cultural history of taste as well, and argued that American food packages supplied to starving Europeans in the aftermath of World War II altered the flavours they consumed. This was, he argued, 'the internationalisation of the sense of taste' as Europeans embraced fast-food restaurants that sold a standardised menu of hamburgers and Coke.¹⁷ Historians considered the historical role played by touch. In *The Book of Touch*, edited by Constance Classen in 2010, the tactile sense was investigated in its role from medieval life through to the present-day department store, where Classen argued that touch gained particular economic value in modern consumer culture.¹⁸

Sound studies heightened awareness and understanding of humans' engagement with the aural sensory field. Scholars explored how sounds defined spatiality, were categorised and ordered by class, and the effect that noise pollution had on peoples' perceptions of their environment. Mark Smith argued in 2003 that aural historians considered the breadth and depth of human experience through a framework that went beyond the 'visualist representation of the past.'¹⁹ Interest in the history and anthropology of the senses, Joy Damousi and Desley Deacon claimed, 'has begun to pay attention to the ways in which modern life has been shaped by the

¹⁵ Alain Corbin, *The Foul and the Fragrant: Odour and the French Social Imagination* (Cambridge: Harvard University Press, 1986).

¹⁶ Robert Jütte, *A History of the Senses: From Antiquity to Cyberspace* (Cambridge: Polity Press, 2005), p. 269.

¹⁷ *Ibid*, p. 160.

¹⁸ *The Book of Touch*, ed. by Constance Classen (New York: Berg, 2010).

¹⁹ Mark Smith, 'Making Sense of Social History', *Journal of Social History*, 37.1 (Autumn 2003), 165-186 (p. 166).

auditory as much as by the visual.’²⁰ However, for aural history to be relevant, Douglas Kahn argued in 2005, the discipline needed to explore more than just ‘sonic or phonic content.’ He noted the issues related to sound studies, particularly sound’s brief and ephemeral nature that does not ‘occupy the tangible duration methods favoured by research.’²¹ Michel Hilmes echoed Kahn’s words and argued that the discipline needed to be less the study of sound itself but more of the ‘cultural contexts out of which sound media emerged and which in in turn work to create: *sound culture*.’²² This thesis takes account of these remarks and the purpose here is to explore not only how places like Yosemite and the Grand Canyon sounded, but, moreover, how these sounds affected those who heard them.

Understanding the cultural context of sounds has thus proved a key part of aural histories. Historians have researched how people perceived their environment through the sounds that they heard. Casey O’Callaghan 2007 work, *Sounds: A Philosophical Theory*, argued that listening provided a ‘rich source of perpetual information about one’s environment’ and that this led to a re-examination of ‘visuocentric’ hypothesis.²³ Corbin’s influential 1998 book, *Village Bells: Sound and Meaning in the 19th Century French Countryside*, was a pioneering work in the social history of sound, which demonstrated the importance of this historical approach. He

²⁰ Joy Damousi, Desley Deacon, ‘Introduction’, in *Talking and Listening in the Age of Modernity: Essays on the History of Sound*, ed. by Joy Damousi, Desley Deacon (Canberra: ANU Press, 2007), pp. 1-6 (p. 1). Daniel Morat added to this argument and wrote that ‘aural history had made it possible to unravel ‘previously unknown historical connections. Daniel Morat, ‘Introduction’, in *Sounds of Modern History: Auditory Cultures in 19th and 20th Century Europe*, ed. by Daniel Morat (New York: Berghahn Books, 2014), pp. 1-9 (pp. 1-2).

²¹ Douglas Kahn, *Noise, Water, Meat: A History of Sound in the Arts* (Cambridge: The MIT Press, 2005), p. 5.

²² Michel Hilmes, ‘Is There a Field Called Sound Culture Studies? And Does it Matter’, *American Quarterly*, 57.1 (March 2005), 249-259 (p. 249).

²³ Casey O’Callaghan, *Sounds: A Philosophical Theory* (New York: Oxford University Press, 2007), p. 3.

argued that church bells determined a village's boundaries through the creation of an acoustic space. Sonically unchallenged, Corbin argued, the church established undisputed authority over areas through the sound of its bells.²⁴ David Hendy's 2003 publication, *Noise: A Human History of Sound and Listening*, was a wide-ranging cultural study of human engagement with sound; as Hendy stated, 'the history of how and why we have listened to it and reacted to it.'²⁵ In 2001 Mark Smith explored the cultural divides of the United States during the antebellum period through the North and South's different soundscapes. He argued that both region's soundscapes reflected their corresponding institutional and social structures. While the North delighted in the hum of industry, Smith argued, southerners listened in pleasure to the sounds of slave labour and the plantation's bell that signified their authority.²⁶

The majority of aural histories have specifically explored urban sounds and largely ignored natural soundscapes. Emily Thompson's book of 2002, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America 1900-1933*, charted changes to the urban soundscape alongside the 'social and cultural transformations taking place within it, {which} combined to create a culture in which noise became a defining element.'²⁷ In 2003 Derek Valliant studied

²⁴ Alain Corbin, *Village Bells: Sound and Meaning in the Nineteenth-Century French Countryside* (London: Papermac, 1999).

²⁵ David Hendy, *Noise: A Human Study of Sound and Listening* (London: Prolific Books, 2013), p. 11. See as well, John M. Picker, *Victorian Soundscapes* (Oxford: Oxford University Press, 2003), who called for historians to take account of the 'earwitness.' Bruce Smith who investigated the social dynamics of early modern Britain. Bruce Smith, *The Acoustic World of Early Modern Britain: Attending to the O-Factor* (Chicago: University of Chicago Press, 1999).

²⁶ Mark Smith, *Listening to Nineteenth Century America* (Chapel Hill: University of North Carolina Press, 2001).

²⁷ Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America 1900-1933* (Cambridge: MIT Press, 2002), p. 119.

the aural identity of Chicago during the late-nineteenth century, and argued that sonic class divisions were race and class motivated.²⁸ In 2007 Peter Payer examined how infrastructure altered the soundscape of Vienna between 1870 and 1914 and transformed the acoustic qualities of urban spaces.²⁹ This argument echoes those made by acoustic ecologists who noted that changes made to vegetation altered locations' aural qualities.³⁰ Within urban environments, aural historians have paid attention to the subjective nature of listening. Some, at times welcomed factory noise during the industrial revolution, as it was considered the sound of progress and employment. But, others were more critical. As a consequence, noise abatement societies were established during the Progressive Era in the United States as the roar, din and clang of industry came to be considered a social ill.³¹

Such urban sounds inevitably connect to the aural space of interest in this dissertation: the natural soundscape of the United States. In 1969 R. Murray Schafer established the World Soundscape Project and pioneered 'acoustic ecology.' He coined the term 'soundscape' and argued that it was possible to 'isolate an acoustic environment as a field of study just as we can study the characteristics of a given landscape.'³² He wrote that in order to establish sonic historical perspectives,

²⁸ Derek Valliant, 'Peddling Noise: Contesting the Civic Soundscape of Chicago, 1890-1913', *Journal of the Illinois State Historical Society*, 96 (Autumn 2003), 257-287.

²⁹ Peter Payer, 'The Age of Noise: Early Reactions in Vienna, 1870-1914', *Journal of Urban History*, 33.5 (July 2007), 773-793.

³⁰ See: Almo Farina, *Soundscape Ecology: Principles, Patterns, Methods and Applications* (New York: Springer, 2013), pp. 50-51.

³¹ Raymond Smilor argued in his 1977 article that noise during the Progressive era was considered a waste product and a mark of inefficiency, see: Raymond Smilor, 'Cacophony at 34th and 6th: The Noise Problem in America, 1900-1930', *American Studies*, 18.1 (1977), 23-38. See also, Karin Bijsterveld, 'Technology and Symbolism of Sound in European and North American Noise Abatement Campaigns, 1900-40', in *The Auditory Culture Reader*, ed. by, Les Back & Michael Bull (Oxford: Berg: 2003), pp. 165-189.

³² R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester: Destiny Books, 1994), p. 8.

academics needed to turn to 'earwitness accounts from literature and mythology, as well as to anthropological and historical records.'³³ Schafer offered the term 'natural soundscape,' and defined this as a soundscape devoid of human-made noise. He claimed sound was of great importance to early Americans and that 'in the virgin forests of North America, where vision was restricted to a few feet, hearing was the most important sense.'³⁴ The sound recordist and acoustic ecologist Bernie Krause investigated the effect of noise pollution on human perception of natural sounds. He argued that mechanised machines and noisy environments distanced people from the natural environment. Krause wrote that due to human activity some natural soundscapes became extinct. He claimed that one out of every four locations of his wild soundscape recordings in his archive had succumbed to noise pollution— 'forever silenced, fully extinct, or hopelessly altered.'³⁵

Work on soundscapes highlighted the subjective nature of listening. Sounds that some people considered pleasurable, have been heard by others as disruptive noise. Defining what constitutes noise as a negative sensory experience has therefore been problematic. However, the British physicist G. W. C. Kaye's argument, that noise was 'sound out of place,' has not been surpassed. Noise, Kaye claimed, was 'excessive loudness, its composition, its persistence or frequency of occurrence (or alternatively, its intermittency), its unexpectedness, untimeliness or unfamiliarity, its redundancy, inappropriateness, or unreasonableness, its suggestion

³³ Ibid, p. 8.

³⁴ Ibid, p. 24.

³⁵ Bernie Krause, *Wild Soundscapes: Discovering the Voice of the Natural World – A Book and CD Recording* (Berkeley: Wilderness Press, 2004), p. 35.

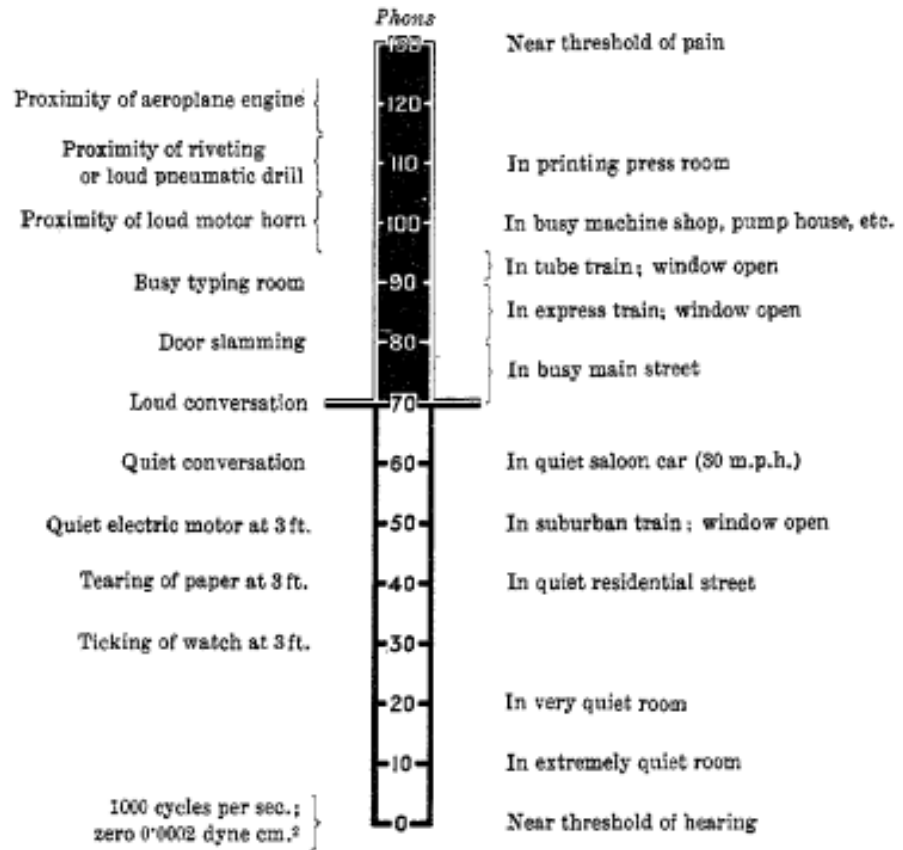
of intimidation, arrogance, malice, or thoughtfulness.’³⁶ Complaints that referred to mechanised noise in national parks certainly considered noise as sounds that were not part of a nature experience. Etymologically, noise, according to the Oxford English Dictionary, comes from the Anglo-Norman word *noice*, *nois*, *nose* meaning a din, brawl or disturbance made by animals. In Old French the word came from *noyse*, meaning a tumult, dispute, quarrel, discontentment or unrest.³⁷ For the purpose of this study, noise has been defined as a sensory experience that is both unwanted and disturbing. The United States Environmental Protection Agency provided the following description of noise that also is used throughout this thesis, as sound that is ‘unwanted when it interferes with normal activities such as sleeping, conversation, or disrupts or diminishes one’s quality of life.’³⁸

³⁶ George William Clarkson Kaye, ‘Noise and its Measurement’, *Proceedings of the Institution of Great Britain*, (1931), 435-438.

³⁷ Noise accepted definition given. Oxford English Dictionary 2015.

³⁸ United States Environmental Protection Agency, ‘Clean Air Act Title IV – Noise Pollution’ <<https://www.epa.gov/clean-air-act-overview/clean-air-act-title-iv-noise-pollution>> [accessed 5 October 2014].

Approximate loudness levels of common noises
B.S. loudness scale of phons



1. G. W. C. Kaye – noise measurement table: 1936.³⁹

As well as being a work of sensory studies, this dissertation is equally an environmental history. However, environmental historians have traditionally failed to recognise the importance of sound in their studies. Peter Coates noted in his 2004 exploratory essay on natural soundscapes that ‘environmental historians are absent from the emerging cadre of sound historians that is challenging the visual bias of scholarly and popular culture.’⁴⁰ The situation has not changed since Coates

³⁹ George William Clarkson Kaye, ‘The Measurement of Noise’, *Reports on Progress in Physics*, 3 (1936), 130-142 (p. 141).

⁴⁰ Peter Coates, ‘The Strange Stillness of the Past: Toward an Environmental History of Sound and Noise’, *Environmental History*, 10.4 (2005), 636-665 (p. 636).

wrote this. Historians who have written on the national parks as a recreational pursuit have tended to focus on tourists' visual engagement with these places over all other sensory experiences of the parks. Marguerite Shaffer argued in her 2001 book, *See America First: Tourism and National Identity, 1880-1940*, that promoters taught Americans 'what to see and how to see it' in a pursuit of national identity through nature tourism.⁴¹ David Louter focused on how tourists consumed nature from the seat of an automobile and argued in *Windshield Wilderness*, published in 2006, that park roads 'provided a scenic narrative: they organized and selected views for park visitors {...} concentrating people in specific areas – and presenting nature.'⁴² Both of these scholars have provided meaningful and valid analysis of outdoor recreation, but are used here to demonstrate the single-sense approach to the subject. National parks offered visitors more than just scenic vistas to look at. Tourists left their automobiles at the curb side to look at vistas, picnic and hike trails and through these acts listened to natural sounds.

National park historians have arguably exaggerated the significance of the primary sense. Alfred Runte's classic study of American national parks, *National Parks: The American Experience*, declared that monumental landscapes shaped the national park idea.⁴³ Runte failed to consider how tourists appreciated and sought out parks as an aural experience. He made no mention of visitors remarking on the Grand Canyon's silence, the muffled sounds of Rocky Mountain National Park in

⁴¹ Marguerite Shaffer, *See America First: Tourism and National Identity, 1880-1940* (Washington: Smithsonian Institution Press, 2001), p. 4.

⁴² David Louter, *Windshield Wilderness: Cars, Roads, and Nature in Washington's National Parks* (Seattle: University of Washington Press, 2006), p. 13.

⁴³ Alfred Runte, *National Parks: The American Experience*, 4th edn (Lanham: Taylor Trade Publishing, 2010), pp. 57-74.

winter or the roar of waterfalls and storms in Yosemite Valley. To Runte national parks were a visual experience and a silent one.⁴⁴

When discussing threats to the integrity of natural areas, scholars have equally neglected the issue of sound and the influx of human-made noise. Michael Yochim undertook a study of winter use in Yellowstone national park and the effect that snowmobiles had on the park. Yochim did not explore the subject from an aural history perspective but situated the work in the realm of National Park Service policy and political issues. Yochim's overall argument was that snowmobile use was an issue of political freedom versus the reverence for nature.⁴⁵ Similarly, Peter J. Blodgett considered tourism in Yosemite between 1855 and 1916 in his 1990 article, but failed to mention the noise that visitors made.⁴⁶ A further example of historians being deaf to the aural experience of nature is Paul Sutter's 2002 work on the establishment of the Wilderness Society, *Driven Wild*. Sutter represented the role of the automobile in natural areas but was virtually silent on all noise related issues.⁴⁷

The purpose of this dissertation is to take a new approach to national park history and further knowledge of how places sounded and were experienced. How did tourists react to the sound of thunderstorms in Yosemite Valley in the later years

⁴⁴ Finis Dunaway also focused on the visual sense in his work, *Natural Visions: The Power of Images in American Environmental Reform* (Chicago: University of Chicago press, 2005).

⁴⁵ Michael Yochim, *Yellowstone and the Snowmobile: Locking Horns Over National Park Use* (Lawrence: University of Kansas Press, 2009).

⁴⁶ Peter J. Blodgett, 'Visiting "The Realm of Wonder": Yosemite and the Business of Tourism, 1855-1916', *California History*, 69.2 (Summer 1990), 118-133.

⁴⁷ Paul Sutter, *Driven Wild: How the Fight against Automobiles Launched the Modern Wilderness Movement* (Seattle: University of Seattle Press, 2002). Other publications have also failed to recognise the sonic impact of tourism, many of which have focused on the visual sense. See: Richard White Sellers, *Preserving Nature in the National Parks: A History* (New Haven: Yale University Press, 1997). Ethan Carr, *Wilderness by Design: Landscape Architecture and the National Park Service* (Lincoln: University of Nebraska Press, 1999). Linda Flint McClelland, *Building the National Parks: Historic Landscape Design and Construction* (Baltimore: John Hopkins University Press, 1998). Alfred Runte, *Yosemite: The Embattled Wilderness* (Lincoln: University of Nebraska Press, 1990).

of the nineteenth century? How did visitors to the Grand Canyon engage with the 'silence' of the place? In what way was a backcountry hiker's sense of place in the Canyon altered by the noise of helicopters? These are some of the questions addressed here.

In order to write this thesis there was a need to rely on written sources. At first this appears problematic, the need to explore aural experience through visual texts. But, as Mark Smith argued, 'through careful and considered engagement with printed evidence, we can readily grasp what particular sensory events or stimuli meant to particular individuals and groups in particular contexts.'⁴⁸ Tourists' writings, promotional brochures, oral histories, maps, travel guidebooks, noise complaint letters, cartoons and other sources have been used throughout this work to further understanding of the aural national park and nature experience.

The following work explores the aural experience of nature primarily through case studies of Yosemite and Grand Canyon national parks. These two parks were chosen as they are considered icons of the national park system; the Grand Canyon is the second most visited park in the United States and Yosemite the third.⁴⁹ Additionally they are internationally recognised and acclaimed natural spaces and both are listed as UNESCO World Heritage Sites.⁵⁰ Both parks were amongst the earliest places in the United States to be protected due to their natural importance. Yosemite was provided protection in 1864 by President Lincoln and became a

⁴⁸ Mark M. Smith, 'Producing Sense, Consuming Sense, Making Sense: Perils and Prospects for Sensory History', *Journal of Sensory History*, 40.4, 841-858 (p. 849).

⁴⁹ National Parks Conservation Association [online]. 'Ten Most Visited Parks'. [cited 20 June 2015]. Available from: <<http://www.npca.org/exploring-our-parks/visitation.html?referrer=https://www.google.co.uk/>>.

⁵⁰ The Grand Canyon was listed as a UNESCO World Heritage Site in 1979, Yosemite in 1984.

national park in 1890. The Grand Canyon was not granted national park status until 1919, but was given federal protection as a Forest Reserve in 1893, a Federal Game Reserve in 1906 and was promoted to National Monument status in 1908 by President Theodore Roosevelt. Both parks have long histories as tourist destinations and have been subjected to significant noise pollution.

Within this history of two park soundscapes, I also look at the conservation figure John Muir. The extent to which environmental history has been dominated by the visual sense is illustrated through the scholarship on John Muir. He has been the figurehead and spiritual father of American national parks since their foundation. Yet work on Muir by renowned historians, including Donald Worster, have failed to recognise the importance of sound in his life and work. Muir's books and journals were filled with accounts of his aural experiences, yet historians have either failed to recognise these accounts or have simply chosen to ignore them. Giving voice to Muir's appreciation of natural sounds provides a further understanding of his life and contribution to the promotion and preservation of national parks. The founding father of the national parks valued listening to natural sounds that was on a level with his visual enjoyment of these areas. This needed to be recognised. The Sierra Club and other environmental groups feature throughout this work as well, as they have led the campaigns to restore natural quiet in the parks.

Tourists' comments on the enjoyment of natural sounds, passionate campaigns to restore natural quiet to the parks, Muir's extensive remarks on the sounds he heard and how listening provided park visitors with a sense of place, all highlighted the importance of listening to natural sounds in the national park

experience. Within the literature of national park history and environmental history, this aspect of human engagement with the parks has been consistently overlooked. Visuocentric historians have primarily offered a singular sense perspective on human encounters with nature that have failed to fully explain how these places have been experienced. Analysis of the aural experience within this thesis has provided an enhanced and fuller perspective of human engagement with nature. The overriding sense of the research conducted in this work has been that listening has been, and continues to be, an important part of the park experience, a fact that has not been wholly appreciated by scholars before.

This thesis has focused on two parks within the national park system that is made up of fifty-eight major parks. Yet, each park has its own individual and distinctive aural qualities, which in one study cannot be detailed, explored and analysed. For example, the soundscape of Acadia National Park in Maine, which is located on the East Coast has provided visitors with a different sonic experience to that of the Grand Canyon and Yosemite. An area of research that fell outside of this study but is worthy of further attention is that of historically significant cultural sounds in particular parks. Cannon fire at Fort McHenry, Civil War re-enactments at Gettysburg and the sounds of the Omaha Indian Buffalo Dance are all sounds that have added to the individual qualities of historic parks and imbued them with significance and identity. Studies of natural soundscapes and how people engaged through the aural sense with parks outside the United States offers a further course of study. Although this study has explored natural soundscapes, listening and seeing are just two senses that tourists have engaged with the parks through, but tourists

have also touched, smelt and tasted the parks as well. A study that explores how visitors have engaged with the parks through these senses will further enhance our appreciation of how parks have been experienced. What this study does is to put sound into the historical debate of nature and national parks in the United States.

North America, initially heard as a sonically separate space, was transformed aurally by Euro-American conquest. Places that rang out with the cultural sounds of Native Americans and nature were overarched with the sounds of new farming communities, industrial operations and transportation that accompanied westward expansionism. Americans, who had initially welcomed the aural qualities of industrialisation, came to hear the din of machinery as a social ill and escaped to the national parks to listen to the more tranquil sounds of nature. Yet, mass tourism and commercialisation of the parks transformed these soundscapes so that the natural sonic qualities that tourists had sought became increasingly scarce. The campaigns to restore natural quiet in the parks went to the heart of the ideals of American democracy and the individuals right to make noise, and conversely, to experience quiet. As this thesis highlights, business interests and political concerns often overrode the preservation and conservation of protected areas.

Chapter outline

The first chapter of this thesis explores how both Native Americans and early Euro-American settlers interpreted natural sounds. It investigates how Native Americans heard sounds that reminded them of familiar places, while European migrants listened to soundscapes that reminded them that they were newcomers.

This chapter builds an understanding of how settlers remade the soundscape to their liking. European migration to North America altered the continent's sonic identity through the introduction of new cultural sounds, which in turn established a new Euro-American soundscape. The stroke of the axe, noise of mining operations, and the vocal sounds of new animal species, ushered in a new sonic identity for the area that became the United States as the sound of industry, commerce and expansionism overarched the sounds of nature. This chapter notes how Euro-Americans also destroyed soundscapes through acts such as hunting, with the extinction of the passenger pigeon as one example.

The second chapter turns to wilderness and how explorers came to value natural sounds in the Grand Canyon of the Colorado. I argue that visitors used the aural sense to describe and understand the Grand Canyon. The chapter discusses how sound generated different emotions at different places within the park. Tourists' sense of place when they listened to the 'silence' from the rim was diametrically opposed to those who ran the Colorado River through the Canyon and heard the river's roar as it cascaded over rapids with a mixture of terror and foreboding.

In chapter three, I turn to look at the prominent late-nineteenth century advocate of listening to nature, John Muir, the naturalist, conservationist, author and first president of the Sierra Club. As the most renowned commentator on American national parks and natural spaces, his works have been read as part adventure story, naturalist study and tourist guidebook. Muir, the 'father of the national parks,' brought the sounds of these natural spaces into the consciousness of

the wider American public and argued that listening was central to the enjoyment of nature. Being a figurehead for the national parks, his thoughts on park soundscapes were and continue to be of importance. Muir introduced the American public to the rich sonic diversity of the national parks and provided guidance to his readers on how to listen to nature and act so that they could hear natural sounds undisturbed. Ideas of the sublime in nature within the aural sense are explored here through Muir's writings. Muir was most closely associated with California's Yosemite Valley, which is a case study of this thesis. Therefore, studying Muir also furthers understanding of Yosemite's soundscape and its importance in experiencing the place.

Muir leads into the fourth chapter that charts the evolution of Yosemite National Park's soundscape. The section begins by demonstrating the prominent features of the park's natural sonic identity, primarily, but not solely, that of an aquatic soundscape. How tourists interpreted the natural sounds they heard as symbols of Christianity are explored and the effect this had on the meaning of the park. The primary focus of this chapter is the development of a tourist soundscape in the park from the late-nineteenth century up to World War II, and how the Valley bore the sonic imprint of Euro-American transportation, business and entertainment. I explore how these new sounds altered visitors' perception of the park. Sonic class divisions are brought in here – the more boisterous vaudeville entertainment soundscape of Camp Curry is compared to that of the luxurious Ahwahnee Hotel and the designers' quest to create a monastic level of quiet in the hotel.

The fifth chapter deals with the degradation of both the Grand Canyon and Yosemite natural soundscapes. It focuses on the ingress of mechanised machines, primarily that of aircraft. The section argues that roadless areas offered no protection from the ingress of noisy machinery that were not bound by the confines of existing park infrastructure. Air tourism promoted the parks primarily as a visual experience and this platform of tourism not only degraded natural sounds but reduced visitors' engagement with the park - soundscapes were additionally jeopardised in the name of national security as the roar of fighter jets represented, to some, the 'sound of freedom.' The main argument is that business and security interests overrode the protection of park resources.

Campaigns and efforts to restore natural quiet in the parks is the focus of the final chapter. The National Park Service's response to invasive noise is highlighted and the curbs on the agency's ability to reduce noise levels in the park. The issue of both motorised watercraft on the Colorado River in the Grand Canyon and air tours over the park are the primary topics discussed here. The argument is made that when the Park Service and environmental groups came up against powerful business interests supported by politicians, the opportunity to reduce noise in the parks was reduced. The chapter ends by looking at wider noise pollution problems in the parks and how through education, new technologies and perseverance, there has been some progress in reducing noise pollution.

Chapter I

Sonic Identities and a Sense of Place: Native American and Early

European Settlers in North America

'It was a beautiful quiet morning. All nature slept, until the morning feathered bells rang out.' Simon Pokagon, Chief of the Potawatomi – 1899.¹

'The thunder here is not like the tame thunder of the Atlantic coast,' Francis Parkman wrote in *The Oregon Trail*, 'bursting with a terrific clash directly above our heads, it roared over the boundless waste of prairie, seeming to roll around the whole circle of the firmament with a peculiar awful reverberation.'² 'Here,' was to the west of Independence, Missouri, and while Parkman found the sounds of the Eastern Seaboard's thunderstorms 'tame,' he thought the storm that rang out over the prairie was wild and unnerving. Parkman's disparate description of these storms was not due to any great variance in their sonic qualities, rather it was on account of the different environments in which he heard them. As a resident of Beacon Hill, Boston, Parkman heard Atlantic Coast storms within a familiar auditory space that resonated with the sounds of home. By comparison, the storm he listened to on the plains was heard in an unknown environment where there was an absence of Euro-

¹ Simon Pokagon, *O-gi-maw-kwe Mit-I-gwa-ki (Queen of the Woods)* (Hartford: C. H. Engle, 1899).

² *Ibid*, pp. 45-46.

American cultural sounds. Consequently, Parkman felt vulnerable in the prairie storm, as he was unable to hear what to him were the familiar and reassuring sounds of his own culture.

European migrants to North America encountered not only an unfamiliar landscape, but also an alien soundscape. While Parkman thought the Atlantic Coast storm ‘tame,’ early American colonists had heard similar Eastern storms with trepidation. Colonists feared thunderstorms to such an extent that they resorted to ringing bells, some of which were specially baptised, in the mistaken belief that this provided protection from thunder’s destructive power.³ It was the sound of the storm, they believed, rather than lightning that caused damage. But, as soundscapes became more familiar and Euro-American cultural sounds were introduced, auditory spaces were reimagined so that they came to be heard as more like home. The geographer Yi-Fu Tuan argued that space becomes place as ‘we get to know it better and endow it with value.’⁴ Though Tuan was not specifically referring to the aural sense, knowledge of an area’s sonic identity gave locations value and reconfigured them as safe places. European migrants headed into the American West in the nineteenth century and described feeling dislocated due to the sounds of the interior. Yet, this was a temporary experience; as Euro-Americans became accustomed to North America’s natural soundscape they began to find pleasure in the sounds that they heard there. Increased familiarity with the continent’s natural sounds, and the introduction of Euro-American cultural sounds, altered their sense of place.

³ Richard Cullen Rath, *How Early American Sounded* (Ithaca: Cornell University Press, 2003), p. 50.

⁴ Tuan, *Space and Place: The Perspective of Experience*, p. 6.

Native Americans and the natural soundscape

Whereas European migrants encountered territory that was unknown to them, Native Americans' lives were intricately intertwined with the natural environment. Mohave 'Coyote Tales' narratives coupled legends and tales with the activities of animals and birds to explain, amongst other occurrences, the world's creation.⁵ Tribes also rationalised visual features of the landscape through story telling. The Lakota explained that a bear was responsible for the claw-like marks on the monolith Bear Lodge Butte, which rises from the Wyoming prairie.⁶ Tribal cultures were interwoven with natural sounds to which some attached great significance. Kah-ge-gah-bowh (George Copway) of the Ojibwa (located in the Great Lakes region), described how the tribe's interpretation of natural sounds established a connection between their lives and that of the wildlife they encountered. Copway wrote in his 1847 work, *The Life and Travels of Kah-ge-gah-bowh (George Copway)*, that the Ojibwa interpreted animal sounds as both good and bad omens. The tribe believed that these sounds had a direct effect on their lives and that particular sounds acted as prophecies. Copway noted how the 'moaning' of a partridge and the call of a chuck ske sey were considered prophecies of death. The tribe believed that barking foxes, howling wolves, bleating deer and screeching owls represented ill omens that were associated with misfortune in

⁵ See, George Devereux, 'Mohave Coyote Tales', *The Journal of American Folklore*, 61.241 (Jul-Sep, 1948), 233-255.

⁶ The Lakota had several names for the monolith, it is now more commonly referred to as Devil's Tower National Monument.

hunting.⁷ Not all wildlife sounds were thought of as bringing bad luck; the Ojibwa considered the call of the raven, a sacred bird in their culture, a good omen. By contrast, the Apache of the Southwestern deserts, related the hoots of owls and calls of other nocturnal birds, like nighthawks and wip-poor-wills, with death.⁸ By giving meaning to birdsong and animal sounds, indigenous peoples became more attached to their environments and this provided them with a greater sense of home.

Simon Pokagon, a chief of the Potawatomi, recounted the tribe's traditions in his 1899 novel *O-gi-maw-kwe Mit-l-gwa-ki (Queen of the Woods)*.⁹ At a time when the tribe's way of living was under threat from Euro-Americans, Pokagon used the novel as a vehicle to highlight Potawatomi customs. In particular, he emphasised the importance of natural sounds to the Potawatomi people and their connection with the land. The book's female protagonist, Lonidaw, had an exceptional ability to mimic birdsong. Pokagon wrote that as her talent was so exceptional, when he heard her sing he expected to see a 'robin perched on (the) topmost bough of (the) tree above, pouring forth his song in tones of richest melody.'¹⁰ He wrote that Lonidaw sang in harmony with mating birds, whose 'soft and tender strains' she joined in musical union. Lonidaw had the ability to translate birds' calls and gave as Jonathan Berliner argued, a 'human voice to nature'; Lonidaw hence provided an aural bridge between the natural environment and the tribe.¹¹ Pokagon attributed

⁷ George Copway, *The Life, History, and Travels, of Kah-ge-gah-bowh (George Copway), a Young Indian Chief of the Ojibwa Nation, a Convert to the Christian Faith, and a Missionary to His People for Twelve Years* (Albany: Weed and Parsons, 1847), p. 48.

⁸ Christopher M. Moreman, 'On the Relationship between Birds and Spirits of the Dead', *Society and Animals*, 22.5 (2014), 481-502.

⁹ Pokagon, *O-gi-maw-kwe Mit-l-gwa-ki (Queen of the Woods)*.

¹⁰ *Ibid*, p. 70.

¹¹ Jonathon Berliner, 'Written in the Birch Bark: The Linguistic-Material Worldmaking of Simon Pokagon', *Publications of the Modern Languages Association of America*, 125.1 (2010), 73-91 (p. 86).

Lonidaw's talents to her physical immersion in nature and her exposure to natural sounds, he argued that this built an intimate connection between her and the tribe's homeland. He described how Lonidaw's mother hid her in a swamp to evade a group of murdering whites and that there, 'amid the scream of birds of prey, and the cries of beasts, and songs of singing birds,' Lonidaw learnt her 'wonderful gifts.'¹² Pokagon noted how the tribe had traditionally engaged with their environment through the aural sense, and that this was, in the case of Lonidaw, a personal aural connection. Pokagon described how the book's male protagonist similarly listened with pleasure to natural sounds. Written in the first person, Pokagon revealed how in the backcountry he delighted in hearing warblers who 'chant{ed} from unnumbered throats,' and cried 'Rejoice! Rejoice!'¹³ Pokagon related how the environment echoed with the sounds of natural music and he referred to a flock of birds vocalising as a 'woodland choir'.¹⁴ Both the male and female protagonists in the book found significant pleasure in listening to birdsong.¹⁵

Native Americans' relationship with natural sounds was a part of their spiritual connection to the land through which they furthered their understanding of the places in which they lived. They tried to make sense out of the sounds they heard, and, therefore, tried to rationalise the presence of natural forces. To this end, the Potawatomi concluded that the sound of thunderclaps was due to

¹² Ibid, pp. 83-84.

¹³ Pokagon, *O-gi-maw-kwe Mit-I-gwa-ki (Queen of the Woods)*, p. 59.

¹⁴ Ibid, p. 59.

¹⁵ Anthropologist, Elizabeth Atwood Lawrence, argued that the Cheyenne imitated natural sounds as part of their culture. She wrote that they disguised themselves as bears, wolves and eagles and enacted relationships that portrayed the struggle between animals and performers how 'growled and chased each other...in meat-feeding scenarios.' See Elizabeth Atwood Lawrence, 'The Symbolic Role of Animals in the Plains Indian Sun Dance', *Society and Animals*, 1.1 (1993), 17-37 (p. 34).

inhabitants of the spirit world playing games with gigantic balls.¹⁶ Some tribes thought that thunder possessed special and powerful forces. The Huron, as Richard Cullen Rath noted, believed that thunder had intelligence and described how the tribe's warriors left their javelins pointing upwards to protect their cabins from thunder's supernatural forces.¹⁷ Other tribes communicated with wild animals in keeping with their belief that they were a part of the natural world. After killing a bear, the Potawatomi would address other wild bears to reassure them that any who were killed in the future would receive good treatment.¹⁸ The Ojibwa, like other tribes, believed that the 'earth, sun, moon, plants and animals and many other things animate and inanimate, were endowed with spirit nature.'¹⁹ Mimicking, communicating aurally and interpreting natural sounds were all a part of Native Americans' beliefs that the earth and all within it possessed spiritual force.²⁰ Through ancestral knowledge and belief systems, natural sounds furthered their understanding of the world around them.

Euro-American settlers and the North American soundscape

In contrast to Native American knowledge of the sounds of the Eastern seaboard, European migrants crossed the Atlantic Ocean to North America and encountered an alien sonic environment. Both the landscape and soundscape were unfamiliar to them, and consequently, they struggled to comprehend their adopted

¹⁶ Huron H. Smith, 'Potawatomi Culture, Religion, and Plant Medicine'
<<https://www.manataka.org/page149.html>>.

¹⁷ Rath, *How Early America Sounded*, p. 31.

¹⁸ Damon Maryle, *The Potawatomi of Wisconsin* (New York: Rosen Publishing Group, 2003), p. 33.

¹⁹ Bernard Coleman, 'The Religion of the Ojibwa of Northern Minnesota', *Primitive Man*, 10.3/3 (July-October 1937) 33-57 (p. 34).

²⁰ For further debate on how 'environmental' Native Americans were. See, Shepard Krech III, 'Beyond the Ecological Indian', in *Native Americans and the Environment: Perspectives on the Ecological Indian*, ed. by Michael Harkin & David Lewis (Lincoln: University of Nebraska Press, 2007), pp. 3-31.

environment. Towns and villages in Europe had an established cultural soundscape where sounds provided a sense of familiarity and reassurance. Europeans were accustomed to locations that exhibited the sonic imprint of their culture, a sonically tamed place, through the sounds of the village bell, marketplace and domesticated animals.²¹ Europeans established a sense of belonging through imposing their own cultural sounds on a location; aural reminders of a more familiar place were introduced by building villages and towns in the style to which they were accustomed. However, whilst the sounds of the towns they established exhibited aural symbols of their own culture, migrants could not help but encounter a different sonic environment in the American wilderness. There were heard the familiar sounds of wind, rivers and certain migratory birds, but also countless new sounds. The cries of wild animals like wolves, coyotes and alligators, led them to feelings of sonic dislocation.

These new soundscapes ran the gamut of emotions, from pleasure through to fear. Richard Lewis, schoolmaster and Maryland assemblyman, wrote of the pleasure he found in listening to natural sounds on a trip from Patapsco, Maryland, to Annapolis, on the Chesapeake Bay, in 1730. Lewis described listening to how the 'local vallies (sic) echo(ed)' to the tones of birds singing. He found the birdsong so enjoyable that he proclaimed the 'musick (sic)' of one bird 'alone, {was} equal to the choir.'²² Lewis wrote that in the aftermath of a storm, the sound of which had

²¹ See Smith, *The Acoustic World of Early Modern Britain: Attending to the O-Factor*, p. 47. Smith wrote that in Early Modern Britain, 'through sound dominant institutions asserted their presence' and that 'people dwelling in a particular soundscape know the world in fundamentally different ways from people dwelling in another soundscape.'

²² *Early American Writings*, ed. by Carla Mulford, Angela Vietto & Amy E. Winans (New York: Oxford University Press, 2002), pp. 573 -577.

overwhelmed the birds' vocalisations, they sang again as if in celebration of its passing. He recalled how 'birds, sweet singing, stretch their throats, and in one choir unite their various notes.' Lewis proved an avid listener and noted the diversity of birdsong throughout his adventure; he described a lark's vocalisations as 'sprightly' and recalled how a turtledove sang like a 'sweet musician.'²³ Birdsong was a positive and enjoyable natural sound for Lewis who originated from Wales; the musical tones of birds provided a familiar European sound that pleased the colonist's ear.²⁴ Martha Brewster, who belonged to an evangelical community in Massachusetts in the 1700s, heard music in natural sounds and noted the rich sonic diversity of her environment. She declared that 'All nature shouts' and 'echoes to their songs.'²⁵ The pleasant burbling sounds of streams produced a calming effect on some colonists. Thomas Morton, the lawyer and writer who founded the British colony Merrymount, at present-day Quincy, Massachusetts, wrote in the 1600s of how he listened to a stream that made 'so sweet a murmuring noise to hear as would even lull the senses with delight asleep.'²⁶

However, colonists heard natural sounds with mixed emotions. They wrote positively of familiar sounds such as birdsong and running water, but the sound of wild animals, which included wolves, filled them with terror. Environmental historian Roderick Frazer Nash in his 1967 book, *Wilderness and the American Mind*, argued that wilderness evoked fear in Europeans. He reasoned that this fear was

²³ Ibid.

²⁴ It is thought that Richard Lewis originated from Montgomeryshire, Wales and attended both Eton College, Windsor, and Balliol College, Oxford. He was born in 1700 and was certainly living in Maryland by 1725. See *Southern Writers: A New Biographical Dictionary*, ed. by Joseph M. Flora & Amber Vogel (Baton Rouge: Louisiana, 2006), p. 263.

²⁵ *Early American Writers*, p. 817.

²⁶ Ibid, p. 251.

grounded in folklore, mythology and the symbolism of a Judeo-Christian tradition.²⁷ For European migrants, the natural sounds of Colonial America contributed to and intensified this trepidation. William Bradford of the Plymouth Colony wrote that from the local forests of the colony there came a 'hideous and great cry' and concluded that the demonic noise he heard was due to a 'company of wolves or such wild beasts.' Bradford, who originated from Yorkshire, England, was unaccustomed to the sound of wolves and associated their howls with dark and evil forces.²⁸ With wolves having become extinct in both England and Wales, the unfamiliarity of these sounds – and others like it - heightened colonists' dread of the wilds of America.²⁹

Colonist Mary Rowlandson, in her captivity narrative of 1682 during King Phillip's War, described the natural environment as a place of terror-inducing wild sounds; Rowlandson recalled hearing 'roaring, {...} yelling, {...} and whooping' and she considered her seemingly untamed environment a 'vast and howling wilderness.'³⁰ Rowlandson associated the natural, but unfamiliar sounds of the North American wilderness, with the devil and his followers. Whereas the village bell denoted a sense of human control and order, the cries of animals in the wilderness generated a fear of the unknown and exacerbated her sense of danger.

Wolves' howls delineated the areas beyond colonists' control, a wilderness space

²⁷ Roderick Frazier Nash, *Wilderness and the American Mind* (New Haven: Yale University Press, 1982), p. 8. Nash wrote that for early European settlers in North America the environment was a fearful place where, 'the limbs of trees became grotesque, leaping figures,' and that 'the wind sounded like a loud scream.'²⁷

²⁸ See Karen Jones, *Wolf Mountains: A History of Wolves Along the Great Divide* (Calgary: University of Calgary Press, 2002), pp. 6-7. Jones wrote, 'the most common image of the wolf in European folklore is that of a devilish beast, an incorrigible ravager (sic) lurking in the forest eager to devour lost travellers,' a result of folklore and Christian teachings that promoted the 'wolf as an emissary of the Devil.'

²⁹ Wolves are thought to have been extinct in England and Wales by the late fifteenth century, see, Roger Lovegrove, *Silent Fields: The Long Decline of a Nation's Wildlife* (Oxford: Oxford University Press, 2007).

³⁰ *Early American Writings*, pp. 308-313.

where Euro-Americans believed they were at the mercy of feral forces. Wolves in European folklore had a reputation that was threatening, as killers and disciples of the devil. Heard within an unknown space, wolves' howls mixed with the cultural sounds of indigenous peoples generated within these colonists a sense of being under threat.

Nature lovers also feared natural sounds when heard within particular circumstances. In his account of his travel from the Carolinas to Florida in the late 1700s, naturalist William Bartram displayed similar anxieties to those that were exhibited by both Bradford and Rowlandson. Solitude, the darkness of night, and a complete absence of any recognisable cultural sounds made his journey, at times, a fearful experience. Bartram recalled a night spent camping and how he was frightened and kept awake by the 'roar' of alligators, the 'whooping of owls' and the 'screaming of bitterns.'³¹ However, daylight altered his perspective on what he thought was his perilous situation. In the reassuring glow and warmth of the morning sunshine he found the place to be one of 'perfect peace,' which demonstrated an interplay between the aural and visual senses.³² When outside of the safe confines of their settlements, European migrants proved fearful of sounds they heard in the night and anxious over unseen animals that they imagined lurked dangerously under the blanket of darkness.³³ Natural sounds were invariably an imagined threat, rather than an actual peril that endangered their wellbeing.

³¹ Ibid, pp. 849-853.

³² Ibid.

³³ Bradford and Rowlandson were not alone in hearing the American wilderness as a frightful and howling place. Michael Wigglesworth declared in his poem of 1662, 'God's Controversy with New England,' the wild landscape to be 'A waste and howling wilderness, Where none inhabited But hellish fiends, and brutish men That Devils worshiped.' Connecticut minister, Thomas Hooker in the 1650s

The chilling howl of wolves and roar of alligators aside, Europeans often found North America to be an eerily quiet place. Tuan argued that ‘sound dramatizes spatial experience’ and that ‘soundless space feels calm,’ but for explorers in North America during the nineteenth-century, listening dramatized their sense of spatiality but failed to provide a peaceful space.³⁴ The lack of defined sounds meant that it was harder to parcel up space into known or understood places. Sound traditionally established a sense of spatiality; the sound of a known river, cows in a field, and the peal of a church bell gave locations defined borders through knowledge of their sonic identity. Early European settlers lacked the knowledge of these natural soundscapes that would have allowed them to discern the sonic identities of different wild spaces in the interior of North America. This therefore furthered thoughts of emptiness, vastness and desolation. A lack of sound could be as unsettling as a lot of sound, if unexpected or unknown.

In the naturally quiet spaces of the wilderness, Americans of European ancestry craved sounds that gave them a sense of belonging. They felt isolated, oppressed and overwhelmed by the ‘silence.’ John Charles Frémont, the military officer and explorer who led expeditions into the American West in the 1840s, noted a near total absence of sound in his journeys that he found equally disquieting and disturbing. Frémont described the North American interior as a place that exhibited a ‘stillness the most profound,’ and a ‘terrible solitude {that was} unbroken by any

warned his congregation of a ‘vast and roaring wilderness.’ Also see, Rath, *How Early America Sounded*, pp. 147-150.

³⁴ Tuan, *Space and Place*, p. 16.

sound.³⁵ It was not that there was technically no sound, but the absence of familiar sounds of civilization made the environment appear empty and exacerbated his sense of loneliness. Frémont and his fellow travellers only found relief from their sonic oppression when they heard voices that spoke in a familiar language, which disrupted the perpetual 'silence' of the wilderness.³⁶

In the disordered spaces of the American West, Frémont welcomed pockets of Euro-American sounds that gave certain areas a sonic identity of a more familiar and convivial culture. He recalled that the expedition had themselves 'broken [the silence], with the cheerful sound of human voices' that gave respite from the sounds of the wilderness.³⁷ This was not a unique experience in his travels. Frémont wrote that on a further occasion in 1843, he found reprieve from the unfamiliar and disconcerting soundscape through listening to some culturally familiar sounds his expedition heard on the Columbia River that interrupted the 'silence.' Frémont noted how the party heard the tones of a sawmill and that the men drew in their paddles in order to listen with 'pleasure to the unusual sounds.'³⁸ The tones of the sawmill brought thoughts of the presence of fellow Euro-Americans in the isolated spaces and temporarily broke the nervous tension brought upon the expedition by the interior's soundscape. The sounds that they heard gave them respite from the quiet, a sense of belonging and thoughts of more familiar, safe and comforting

³⁵ John Charles Frémont, *The Expeditions of John Charles Frémont. Volume I, Travels from 1838 to 1844*, ed. by Donald Jackson and Mary Lee Spence (Chicago: University of Illinois Press, 1970), p. 270.

³⁶ It was not only Euro-Americans who found the quiet of natural spaces distressing. Historian David Hendy argued that British explorers in Australia during the early years of colonisation considered the wilderness 'barren, menacing and corroding' and that these spaces were heard in 'horror and depression. Hendy, *A Human History of Sound and Listening*, p. 164.

³⁷ Frémont, *The Expeditions of John Charles Frémont. Volume I, Travels from 1838 to 1844*, p. 509.

³⁸ *Ibid*, p. 565.

places. It was not so much natural sounds that caused anxiety, but the absence of more familiar cultural sounds.

Similarly, on the great migration to the American West in the nineteenth century, overlanders experienced an aural environment that they often considered disturbing. Travelling in 1848 on the trail west of St. Joseph, Missouri, Father Lempfrit recalled being alone in the 'immense prairie' where there was not the 'smallest sound,' especially when compared to Europe where the 'Christian soul rejoices when hearing the sound of the bells; here there is absolute silence.'³⁹ Thunderstorms roamed over the plains, and overlander Overton Johnson during a night of an incessant storm proclaimed that the sound was like a 'cannonade of heavy artillery.'⁴⁰ Overlanders felt threatened by both the prolonged periods of quiet and interludes of loud sounds within the seemingly never-ending expanse of the plains.

Alexis de Tocqueville, a nineteenth century French aristocrat and commentator on the United States, also found the muted soundscapes of American forests disquieting. Tocqueville described an American soundscape that was distinctly different from any he had previously encountered. In Europe, Tocqueville commented, one was never far from, 'the distant ringing of the nearest village bell, the footfalls of a traveller, the axe of the woodchopper, the sound of a shot, the barking of a dog, or only that confused rumour which rises from a civilised

³⁹ Michael E. LaSalle, *Emigrants on the Overland Trail: The Wagon Trains of 1848* (Kirksville: Truman State University Press, 2011), p. 103.

⁴⁰ Frank McLynn, *Wagons West: The Epic Story of America's Overland Trails* (London: Pimlico, 2003), p. 137.

country.⁴¹ Even when lost in Europe's forests the traveller always heard 'some sounds of life.'⁴² American forests lacked these cultural sounds of forestry operations and Tocqueville found them difficult to comprehend. Unaccustomed to American forests' sonic identity, he struggled to find meaning in these spaces and claimed that, 'not only man is missing, but even the voices of animals are not heard, and that everything in the woods is silent.' The listener 'holds his breath,' Tocqueville added, 'fearfully the better to catch the slightest sound of existence which may strike his ear,' however, there was 'no sound, no murmur.'⁴³

For Tocqueville, a perceived absence of sound gave an impression of a space without boundaries; the area possessed no discernible sonic qualities through which he could define it. He heard the area as beyond the limits of civilisation, incomprehensible and indefinable, due in part to its soundscape. Euro-Americans heard nature through a spectrum of interpretations. Their aural experiences were determined by the sounds that they heard and what situation they were heard in. Sounds could be threatening or reassuring, frightening or calming, disturbing or pleasing. Yet Tocqueville felt that the 'silence' of American forests was a temporary phenomenon. In her analysis of Tocqueville's travelogue *Fortnight in the Wilderness*, Ewa Atanassow argued that Tocqueville was already aware that the American wilderness would succumb to the spread of European settlement.⁴⁴ The quietude

⁴¹ George Wilson Pierson, *Tocqueville in America* (Baltimore: John Hopkins University Press, 1996), pp. 263-264.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Ewa Atanassow, 'Fortnight in the Wilderness: Tocqueville on Nature and Civilization', *Perspectives on Political Science*, 35.1 (2010), 22-30 (pp. 22-23).

of the American forest was on borrowed time and its inhabitants, both human and animal, would be overwhelmed by the sounds of Euro-American 'progress.'

Euro-Americans and changes to the soundscape

Native Americans impacted the natural soundscape before the arrival of Europeans, through the activities of village life, hunting and warfare. They also transformed the soundscape through actions that altered the physical landscape. As the geographer W. M. Denevan noted, by '1492 Indian activity throughout the Americas had modified forest extent and composition, created and expanded grasslands [...] agricultural fields were common, as were houses, towns and roads and trails.'⁴⁵ These actions caused changes in the soundscape through deforestation that altered the channels of sound carrying winds, and construction of trails created corridors of human-made sound whilst the establishment of settlements altered existing soundscapes. However, such intrusions into the landscape and soundscape were limited in comparison with the changes wrought by Euro-American colonists. As Europeans migrated, in increasing numbers after independence, their impact on the landscapes and soundscapes of the United States grew significantly.

Euro-American transformation of the American landscape has been well documented; the mining frontier, cattle kingdom and lumber industry all caused far-reaching transformations to the visual appearance of these areas. However, the effect these settlers had on the natural soundscape has been less examined. The

⁴⁵ W. M. Denevan, 'The Pristine Myth: The Landscape of the Americas in 1492', *Annals of the Association of Geographers*, 82.3 (1992), 369-385 (p. 370).

European invasion of North America was not a quiet conquest, new sounds were introduced, and pre-existing ones were displaced, covered or even silenced. Euro-American settlement, and the cultural shift they brought with them, radically altered the sonic identity of the continent. In locations across North America the natural soundscape was overlaid with the new sounds of westward expansionism; indeed, historian Sarah Keyes described western migration as a 'sonic conquest' of Native American peoples.⁴⁶ She argued that indigenous peoples experienced Euro-American migration on the overland trails to the American West as a sonic encroachment on their lands. In her article, Keyes retold Illinois preacher Frank Langworthy's account of noise generated by overlanders on the trail. She included this to explain the new sounds Native Americans encountered through European contact. However, Langworthy's account demonstrated the effect European migration had on the natural soundscape, an aspect Keyes left unexplored.

We hear on all sides,' Langworthy wrote, 'the lowing of cattle, the neighing of horses, the braying of mules, and barking of dogs, mingled with the clack of human voices. To this added the sound of the viol, bugle, tambourine and clarionette (sic). To fill up the chorus, rifles and pistols are almost constantly cracking, responsive to the rumbling, grinding music of carriage wheels still passing along...(the mountain sheep looked) down in astonishment upon the noisy multitude...breaking in the eternal solitude of their domain.'⁴⁷

⁴⁶ Sarah Keyes, 'Like a Roaring Lion: The Overland Trail as a Sonic Conquest', *Journal of American History*, 96 (2009), 19-43.

⁴⁷ *Ibid*, (p. 38).

Clearly aware of the sonic disturbance caused by the wagon train, Langworthy noted how the party overwhelmed the natural soundscape and the effect this had on native wildlife. He understood that the mountain sheep were part of the established soundscape, an intricate part of the biophony and geophony, and that the noise of the wagon train was an abnormality for them - responsible for the disruption of the 'eternal solitude' of the plains. As overland trails cut across the American West in the nineteenth century, so corridors of Euro-American culture spread across the interior. These trails altered the existing soundscape and acted as sonic pathways for Europeans bringing with them their own distinct identity.

John Gast's 1872 painting, *American Progress*, has been celebrated as the visual manifestation of Manifest Destiny, Americans' belief that it was their God-given right to populate and 'civilise' the North American continent.⁴⁸ The painting depicted the relentless and evolving advance of Euro-American society westwards towards the Pacific Ocean. Reappraised from an aural perspective, *American Progress* demonstrated the influence of westward migration on the continent's sonic identity. Prairie schooners and wagons creaked and rumbled across the plains and the three transcontinental railroads, with the din of wheels on iron rails and the screech of locomotives, embodied the establishment of new corridors of mechanical sound.⁴⁹ The image portrayed the rapidly expanding city of New York as an indicator of the metropolises that would be built across the United States. The bustling streets, factories and transportation infrastructure represented the urban soundscape and the greatest challenge to nature's auralty across North America.

⁴⁸ John Gast, *American Progress*, 1872, Museum of the American West, Griffith, Los Angeles.

⁴⁹ Randolph Barnes Marcy, *The Prairie Traveller* ([n.p.]: West Virginia Pulp and Paper Company, 1859; repr. 1961), p. 31.

Gast's depiction of western expansionism in *American Progress* also portrayed the emergence of Euro-American farming communities. Migrants felled trees for farming land, fuel and building materials. For settlers, the ring of the axe overtook the sounds of 'silence'.



2. John Gast, *American Progress*.⁵⁰

Sonically, settlers heard themselves taking control of the landscape; the axe spoke to them of the establishment of communities and of new homes being built. Author H. Marion Stephens described the clearing of forestlands in Wyoming in the 1850s in her work, *Home Scenes and Home Sounds*. 'Through, morning, noon, and night, the sound of the axe reverberated through the woods,' Stephens wrote, 'and

⁵⁰ John Gast, *American Progress*, Museum of the American West, Griffith, Los Angeles.

over the hills, with a heartiness which told plainly as words could have done, that the spirit of industry and enterprise had broken in upon the dreamy stillness of Wyoming.⁵¹ For Stephens the ring of the axe was a reassuring sound; it represented the advance of Euro-American civilisation and the creation of new opportunities being carved from the Wyoming wilderness. She did not need to see or to read of 'the spirit of industry,' as she could hear it in the area's new sonic identity. It was the sound of progress and conquest, of spaces becoming places.

During the period that Stephens was writing, forests were considered obstacles to progress and merely a source of raw materials, which Americans rapidly sought to utilise. General Lafayette, the French aristocrat, on a visit to Lockport, New York, in the 1820s, witnessed Americans transforming the environment through the destructive power of the axe. To him, the sound represented a nation of industry and progress. Lafayette proclaimed, 'nowhere have I ever seen the activity and industry of man conquering nature so completely as in this growing village, in every part may be heard the sound of the hatchet and the hammer. Here trees are felled, fashioned under the hands of the carpenter, and raised on the same spot in the form of a house.'⁵² For some commentators the sound of the axe was heard as entrepreneurship, of a nation on the move. However, as with all sensory experiences, people experienced the same events in different ways.

For those with an interest in the American environment as a place of aesthetic and sonic value, not just a source of material wealth, the destructive

⁵¹ H. Marion Stephens, *Home Scenes and Home Sounds, or, The World from My Window* ([n.p.]: Fetridge & Company, 1854), p. 11.

⁵² A. Levasseur, *Lafayette in American in 1824 and 1825, Or Journal of a Voyage to the United States. Vol. II* (Philadelphia: Carey and Lea, 1829), p. 191.

nature of westward expansionism was all too apparent. The Hudson River School, the collective name for the group of artists who emerged from the Romantic Movement during the nineteenth century, were renowned for their depictions of the American landscape and portrayed forests laid waste by the axe. An example of this was seen in George Inness' 1855 painting, *The Lackawanna Valley*, which depicted a scene of the devastating power of axe-wielding Euro-Americans.⁵³ It portrayed a figure reclining in a field surrounded by tree stumps watching a locomotive steam up the valley with a backdrop of factories spewing smoke. Inness' illustration of the visual changes wrought on the landscape provides an insight into the sonic alterations that Euro-American commerce brought with it. The natural soundscape had been replaced by the soundtrack of industrialisation - the ring of the axe, rumble of the locomotive and the noise of fledgling factories. Similarly, Thomas Cole, regarded as the founder of the Hudson River School, presented this idea to great effect in his painting of 1845, *The Hunter's Return*.⁵⁴ He depicted a newly constructed log cabin surrounded by the stumps of trees that had been felled in the name of progress.

Cole was acutely aware of the axe clear cutting forests as a sonic event. In his 1841 poem, *The Lament of the Forest*, he explicitly described the change in the sonic environment. Cole stated that prior to European activity the forest was 'silent...peaceful and calm,' and that he heard a sound, 'a song that filled the universal air! It was the voice of the great Forest, sent from every valley and dark

⁵³ George Inness, *The Lackawanna Valley*, 1856, National Gallery of Art, Washington D.C.

⁵⁴ Thomas Cole, *The Hunters Return*, 1845, Amon Carter Museum, Fort Worth, Texas.

mountain top within the bosom of this mighty land.⁵⁵ He added that the peace and tranquillity of the forest had been obliterated by Euro-Americans; that all was ‘harmony and peace,’ until, ‘man arose...the destroyer’. The ‘song of birds’ was responded to by the axe’s ‘unresting (sic) smote,’ and branches crashed and ‘rolled on the groaning earth with all their umbrage.’ He observed that nature’s auralty was being overwhelmed by human activity; ‘the little streams that oft had raised their voices in the breeze in joyful unison with ours, did waste and pine as if in grief that we were not.’ Cole used his artistic and linguistic abilities to highlight the wanton destruction of the nation’s forests, and how such destruction was not just limited to the visual and kinaesthetic senses, but to the aural as well.



3. George Inness, *The Lackawanna Valley*, 1856.

⁵⁵ Thomas Cole, ‘The Lament of the Forest’ *The Knickerbocker*, (Vol. VXII) (New York: Clark and Edson, June 1841).



4. Thomas Cole, *The Hunter's Return*, 1845.

Euro-Americans and the loss of natural sounds

Not only were Euro-Americans responsible for the introduction of new sounds, they were also accountable for the loss of existing sounds. Euro-Americans considered the natural environment of North America an Eden-like land of abundance, and in their pursuit of food and shelter caused widespread environmental destruction. Their actions were responsible for species displacement, reduction and loss.⁵⁶ Alongside being visually noticeable, these actions adversely impacted the soundscape. The passenger pigeon became one of the most notorious

⁵⁶ See, for example, Donald Worster, *The Wealth of Nature: Environmental History and the Ecological Imagination* (Oxford: Oxford University Press, 1994).

extinctions in North American history and an example of sonic loss in the continent's natural soundscape.

Passenger pigeons, known for their vast flocks, were both a visual and auditory spectacle. Ornithologist John James Audubon estimated that one flock of passenger pigeons alone contained 1,115,136,000 birds.⁵⁷ An eyewitness account from Columbus, Ohio, in 1855 described the scene when a flock descended on the town, and how daylight was obliterated by the birds' arrival. 'Everyone was out of the houses and stores, looking apprehensively at the growing cloud,' he reported, 'a great cry arose from the south end of High Street, "It's the passenger pigeons! It's the passenger pigeons!" And then the dark cloud was over the city. Day was turned to dusk.'⁵⁸ Passenger pigeons also generated a significant amount of sound. Contemporaries who recalled the massive flocks noted the experience as much as a sonic event as they did a visual spectacle. When the flocks descended on a place the soundscape was dominated by their presence.⁵⁹

The Ohioan resident who had written of the visual spectacle of the passenger pigeons' descent on Columbus, described their sonic impact as well. He recalled how the townsfolk heard a 'low-pitched hum that slowly engulfed them,' and as the passenger pigeons flew overhead 'the thunder of wings made shouting necessary for human communication.'⁶⁰ Simon Pokagon described the sound of the birds and how they dominated the soundscape. He was camped by Michigan's

⁵⁷ John James Audubon, *The Birds of America* (Philadelphia: J. B. Chevalier, 1840), p. 62.

⁵⁸ John Aitchison, 'Martha: An Endling's Tale' BBC Radio 4, 16 March 2015
<<http://www.bbc.co.uk/programmes/b054qc1r>> [accessed 14 February 2017].

⁵⁹ See also: Joel Greenberg, *A Feathered River Across the Sky: The Passenger Pigeon's Flight to Extinction* (New York: Bloomsbury, 2014), p. 54. Greenberg wrote that in the city of Cleveland, Ohio, locals fired fireworks into flocks of passenger pigeons causing them to scatter in panic.

⁶⁰ *Ibid.*

Manistee River in May of 1850 when he listened to the sound made by a great flock of the birds. Pokagon recalled that the sound was like an 'army of horses laden with sleigh bells {...} advancing through the deep forests.'⁶¹ Author James Fenimore Cooper noted the sonic impact of the passenger pigeon in his 1845 work, *The Chain-Bearer*.⁶² He wrote in the novel, situated in central New York State, how it was hard to hear his companions speak due to the 'incessant fluttering of wings filling the air.' Cooper declared that it was the vast number of passenger pigeons that were responsible for the great noise and that the birds disrupted the forest's 'impressive stillness.' He noted that when they took the wing it was with the sound of the 'trampling of thousands of horses on a beaten road,' and 'like a crash of thunder.'⁶³ Whether Cooper thought the sounds negative or positive is hard to ascertain, either way, sonically the birds made a powerful impression on him. Passenger pigeons were a keynote sound in numerous areas in the United States, which represented the sound of natural abundance.

Such abundance, however, was not inexhaustible. The passenger pigeon's demise was due to a combination of factors - the species itself was killed as both an easy food source and a threat to crops, which, added to destruction of its forest habitat, led to the bird's extinction.⁶⁴ Americans plucked the birds from the sky by using long poles and nets, yet there was such a profusion of the birds that it was hardly a skilled task. To further increase the slaughter of the birds, Americans used a

⁶¹ Barry Yeoman, 'Why the Passenger Pigeon Went Extinct', *Audubon*, (May - June 2014).

⁶² James Fenimore Cooper, *The Chain-Bearer Or the Littlepage Manuscripts* (London: Richard Bentley, 1845), p. 107.

⁶³ *Ibid.*

⁶⁴ David Soll, 'Resurrecting the Story of the Passenger Pigeon in Pennsylvania', *Pennsylvania History: A Journal of Mid-Atlantic Studies*, 79.4 (2012), 507-519.

technology they had brought with them from Europe, the gun. In his novel, *The Pioneers*, James Fenimore Cooper described the sound of the wholesale slaughter of the birds.⁶⁵ Cooper explained how residents of the fictitious town Templeton used 'every species of fire-arms, from the French ducking-gun [...] to the common horseman's pistol.'⁶⁶ To increase the speed of the birds' execution, a swivel gun was wheeled out. Normally used for Fourth of July salutes, its echo was heard 'ringing among the hills, and telling forth its sounds,' the 'roar of the gun' propelled duck shot into the mass of birds.⁶⁷ Cooper noted how the swivel gun had been used to celebrate the American victory over the British, but how its roar came to represent the destruction of a symbol of the nation's avian community. It was heard as a celebration by the townspeople, in the gun's roar they had a sense of empowerment over nature, that through technology they could overcome the wilderness. The crack of gunfire was heard as the sounds of the passenger pigeon were silenced across the continent. By the mid-1890s the vast flocks had been reduced to dozens of birds, and the last passenger pigeon, Martha, died in the Cincinnati Zoo in 1914.⁶⁸

Industrial sounds and the natural soundscape

The move towards an industrial economy in the United States had a significant impact on the natural soundscape. This did not solely affect urban areas. The quest for minerals, fossil fuels and precious metals brought the noise of machinery into areas far distant from the nation's expanding metropolises. Sawmills

⁶⁵ James Fenimore Cooper, *The Pioneers* (New York: Putnam, 1853).

⁶⁶ Ibid, p. 213.

⁶⁷ Ibid, p. 218.

⁶⁸ Yeoman, 'Why the Passenger Pigeon Went Extinct'.

that supported the lumber industry brought the screech of industry to areas of pristine natural beauty, and where precious minerals and metals were discovered mining operations boomed. The discovery of gold at Sutter's Mill in 1848 on the American River led to significant changes in the visual and sonic qualities of California's natural environment. The ruination of the visual landscape, and damage to the environment through deposits of tailings in riverbeds and the use of mercury that polluted rivers has been well documented. But, the mining frontier was also a noisy affair that radically altered locations' sonic identities.

The mining frontier altered soundscapes across the United States. The construction of boomtowns brought new cultural sounds to the West; boarding houses, saloons and blacksmiths established a familiar soundscape for Easterners. Charles M. Clark recalled the noise of mining operations at Quartz Hill in Colorado in 1861, and noted the incessant 'rattle and jar of the mills.'⁶⁹ Clark described the mines as possessing vast amounts of sonic energy. He recalled how the mills kept up a steady 'click, click,' and from 'deep down in the mines,' there were blasts that 'resounded from every quarter, often filling the air with flying fragments of rock; and then the shrill screaming of the steam whistles, often awake the echoes of the mountains, carrying our thoughts back to the far-off home.' He dreamed of riding the sonic waves out of the cacophonous bedlam and wished for a more peaceful existence back home in the East. Clark, like Langworthy, noted that the din was out of place in the natural surroundings. He wrote that 'it was a strange sound to be heard within the wilds of the mountains.' However, despite the relentless noise, and

⁶⁹ Charles M. Clark, *A Trip to Pike's Peak & Notes by the Way* (San Jose: The Talisman Press, 1958), p. 102.

its being out of place, he still found it comforting. Clark argued that the sound 'was a cheerful one – telling of enterprise and progress and proclaiming that here would be the seat of a populous and powerful community in the future.'⁷⁰

Natural sounds gave way to the sounds of mechanisation as miners sought their fortunes in the goldfields. The aural effect of the Gold Rush was certainly more temporal than the visual degradation of the environment, yet it still affected understanding of these areas, as they resounded with the noise of humans not the sounds of nature. Once placer mining had exhausted the supply of the most easily accessible gold, miners turned to hydraulic mining. This involved the use of powerful jets of water to break up material, making the gold easier to extract. The visual consequences of hydraulic mining on the frontier were spectacular, and are still visible to this day. The Clint Eastwood directed movie, *Pale Rider* (1985), illustrated how the noise of hydraulic mining dominated an area's sonic qualities. In the movie, Josh LaHood, played by Christopher Penn, shows Megan Wheeler, played by Sydney Penny, a hydraulic mining operation. The noise of mining machinery overwhelmed natural sounds in the scene, with powerful water cannons that thundered against the hillside. LaHood, with evident pride, explained the technology and power of the machinery to Wheeler who looked on in disgust before she replied that it looked like 'hell' and it 'hurts my ears.'⁷¹ This disparity of opinion between characters again highlights the ability of aural events to be experienced in different ways by different people and fractions of society. For LaHood the water cannons were the sound of

⁷⁰ Ibid.

⁷¹ *Pale Rider*, Dir. Clint Eastwood, The Malpaso Company, 1985.

industry, progress and wealth, while to Wheeler the noise was painful and represented destruction.

Edward Dunbar, an Arizonian silver miner, listened to the soundscape of the mining frontier with pleasure. Writing in 1867, he associated the sounds of mining with bringing 'civilisation' to the wilderness and of making good use of the land. Dunbar referenced Sutter's Mill as the reason for the expansion of mining operations and specifically noted how the aurality of the area had changed. Echoing the words of both Bradford and Rowlandson, he recounted that before the mill had been established all that could be heard was, 'only the solitude, the silence, the desolation of isolation and unknown wilds, and were heard the whoop and yell of savages, or the howl of wild beast...'⁷² Dunbar argued that with the arrival of Europeans came the advance of the civilised man, and that they overcame the wilderness and its indigenous inhabitants. Dunbar described the advance of Euro-American civilisation as a sonic invasion and celebration, he wrote that they brought with them the 'ringing of the anvil, the sound of the hammer, the saw, and the plane, and the song of the husbandman.'⁷³ To Dunbar, these were the sounds of progress, of taming the wilderness and of bringing a new Euro-American soundscape of 'peace and prosperity {...} over the valley of the Sacramento.'⁷⁴

For some on the mining frontier, the noise of mines and mining towns was too much and they sought peace in the comfort of saloons' private rooms. In Tombstone, Arizona, J. A. Kelly's saloon offered a place 'free from the noise and

⁷² Edward Ely Dunbar, *The Romance of the Age; or, The Discovery of Gold in California* (New York: D. Appleton and Company, 1867), pp. 126-127.

⁷³ Ibid.

⁷⁴ Ibid.

confusion of the streets,' where community leaders enjoyed gambling away 'from the unwashed masses in an atmosphere of carpeted silence.'⁷⁵ The sound of the mines might represent 'progress,' but detachment from this rough, loud noise could be bought and was seen as a consumable good separating the spaces of the rich from the less wealthy.

For Native Americans, the natural soundscapes of North America had provided insights and omens of their futures and been woven into rich tapestries of their traditions. The sounds of different animals and birds evoked particular comprehensions based within each tribe's mythology and cultural tradition. Arriving Europeans heard the same noises but their lack of cultural association meant that such noises told of dislocation rather than home. An absence of European cultural sounds often made the environment appear alien and empty, and the lack of familiar sounds, sonic markers of spatiality, meant that they found spaces difficult to define. Explorers, who experienced a lack of cultural sounds, felt that they were beyond the limits of human civilisation due to the lack of familiar sounds and so they applied blanket beliefs to the American wilderness and its soundscapes. For a place to feel like home it needed to sound like home, and the North American wilderness sounded like nothing they had come across before.

As European migrants spread across the continent, overland trails established corridors of new cultural sounds. The sound of the axe, the rifle and machinery were considered by some to be the sound of progress; noise represented activity, industry and conquest as Euro-Americans imposed their will on native peoples and the land.

⁷⁵ Elliott West, *The Saloon on the Rocky Mountain Mining Frontier* (Lincoln: University of Nebraska Press, 1996), p. 41.

Early Euro-Americans generally saw the land simply as a resource, a place of mineral wealth, of unending timber for expansion and of a plentiful food supply. Forests were cleared, species decimated, and the ground plundered for its precious metals and minerals with little or no thought for visual, material or aural conservation. The nineteenth century, however, ushered in concerns over the exploitation of the landscape. Americans began to consider the environment as more than simply a resource; some, like Thomas Cole, began to believe that they had a unique and wondrous country, that Manifest Destiny did not just mean they had been given a land to conquer, but one that exhibited God's finest work as well. With the official closing of the frontier in 1890, and a sense of pride in the landscape of the nation, Americans began to reconsider the natural environment, and the damage they were inflicting on it. In an increasingly industrialised and noisy nation, the natural soundscape came to be valued as an escape from the noise of industrialisation and a refuge from modern living.

Chapter II

The Grand Canyon: Sounds of Silence and Roaring Rapids

'In the peaceful silence of the canyon' Sky High, Dir. Lynn Reynolds, 1922.¹

Lieutenant Joseph Christmas Ives led an expedition between 1857 and 1858 of the Army Corps of Topographical Engineers to explore and report on the Colorado River and its environs. Ives commissioned a fifty-foot iron steamer for the expedition and set off from Robinson's Landing on the Gulf of California, where the Colorado River empties into the Pacific Ocean, to explore what at the time was, at least to Euro-Americans, a largely unknown stretch of water. Ives steamed upriver and reached the area he named the 'Big Cañon' where he described seeing near vertical walls that towered over a mile high. He remarked that the 'formation of the ground was such that the eye could not follow them the whole distance to the bottom.'² Ives was struck by the visual spectacle of what came to be known as the Grand Canyon, but he also remarked on its distinctive sonic qualities, describing the great abyss as a place of 'unbroken solitude and silence.'³ For Ives, the sound of the Grand Canyon was part of its unique character and a feature that gave it an

¹ *Sky High*, Dir. Lynn Reynolds, Fox Movies, 1922.

² Joseph Christmas Ives, *Report Upon the Colorado River of the West* (Washington: Government Printing Office, 1861), p. 109.

³ *Ibid.*

individual quality. Ives' comment on the 'Big Cañon' as a place of silence is a reputation of the Grand Canyon that has been reiterated ever since by visitors.

The Grand Canyon has repeatedly been considered a difficult place to comprehend due to its vast dimensions that have consistently overwhelmed visitors.⁴ Professor of English Richard Grusin argued that 'part of which it means to understand the Canyon is to experience that sense that it somehow eludes or even transcends comprehension...'⁵ Grusin claimed that the naming of landmarks had helped in the process of understanding the place as visitors could 'recognise the landscape and its features.'⁶ He argued that people needed to see readily identifiable qualities in the Canyon to have any chance of comprehending it. Grusin's argument was not new; the author Edwin Corle in his 1946 book, *The Story of the Grand Canyon*, also described it as a cognitively inaccessible space, a location that was impossible to imagine and describe.⁷ Corle thought that the naturalist John Muir's attempt to describe the Canyon was inadequate. He argued that Muir tried to 'say something,' but that it was 'neither fact nor fancy, realism nor impressionism.'⁸

Ferde Grofé's 1931 composition the *Grand Canyon Suite*, tried to capture the essence of the place in music. But, Grofé focused on trying to recreate the visual appearance of the Canyon. As Brooks Toliver argued, the visual emphasis of the

⁴ The Grand Canyon is 277 miles long, 18 miles across at its widest point, and a mile deep at its deepest point.

⁵ Richard Grusin, *Culture, Technology, and the Creation of America's National Parks* (Cambridge: Cambridge University Press, 2004), p. 105.

⁶ *Ibid*, p. 106.

⁷ Edwin Corle, *The Story of the Grand Canyon* (London: Sampson, Low, Marston & Co, 1948), first published as, *Listen, Bright Angel* (New York: Duell, Sloan and Pearce, 1946).

⁸ *Ibid*, p. 152.

piece was evident in the titles of the different movements, which included ‘Sunrise,’ ‘Painted Desert,’ and the original title of the composition, *Five Pictures of the Grand Canyon*.⁹ He did try to recreate the sounds of the Canyon in the movements ‘Cloudburst’ and ‘On the Trail’; however, in these efforts Grofé faced the problem of turning natural sounds into human-made composition. Edwin Corle wrote that the *Grand Canyon Suite* was a good composition but that it failed to accurately represent the place.¹⁰ Corle argued that Grofé’s attempt to represent the sound of mule trains on the Bright Angel and Kaibab trails could have been ‘anywhere.’¹¹ He added that ‘one might as well call *Pacific 213* Grand Canyon music because the Santa Fe engines come rolling up to the South Rim every day.’¹² The Grand Canyon had its own unique sound that could not be reimagined in music.

Tourists who visited the Grand Canyon at the turn of the nineteenth and twentieth centuries found it an overwhelming spectacle and difficult to define. They were unable to take in the visual extent of the Canyon, its vast length, depth and width overwhelmed them. A tourist staying at the luxurious El Tovar Hotel on the South Rim in 1909 claimed that the Grand Canyon was impossible to describe, he wrote that ‘you feel within the desire for expression but words fail you. [You try],

⁹ Brooks Toliver, ‘Eco-ing in the Canyon: Ferde Grofé’s *Grand Canyon Suite* and the Transformation of Wilderness’, *Journal of the American Musicological Society*, 57:2 (2004), 325-368 (p. 339).

¹⁰ Ferde Grofé. *Grand Canyon Suite*. 1931. Grofé was himself impressed by the soundscape of the Grand Canyon. In an interview with Gerard Schwartz of the Seattle Symphony, he remarked ‘I was spellbound in the silence, you know, because as it got lighter and brighter then you could hear the birds chirping and nature coming to life.’ Grofé used coconut shells to represent the sounds of mules and ‘thunder sheets’ to represent the Canyon’s powerful thunderstorms. See Theresa Schiavone, ‘Grand Canyon Suite – Interviewees Gerard Schwartz and Ferde Grofé Jnr, 29 October 2000, NPR Music < <https://www.npr.org/2000/10/29/1113160/grand-canyon-suite> > [accessed 1 January 2018].

¹¹ Corle, *The Story of the Grand Canyon* pp. 151-152.

¹² *Ibid.*

and then wish you had not spoken'.¹³ His description of the Grand Canyon was symptomatic of tourists' impressions written in the El Tovar guest register between 1906 and 1912 - summation of place through the visual sense simply eluded them. Visitors labelled the Canyon as being, 'wonderful,' 'magnificent,' and 'awesome,' yet in these words, they failed to convey an effective description of the place as these terms lacked any specific meaning, substance or comprehension.¹⁴ Their words described an elusive space. Corle argued that Grofé's attempt to represent the Grand Canyon in music was similarly deficient and 'did not hold up.'¹⁵ Though tourists, composers and naturalists struggled to describe the Canyon visually, through listening to the natural soundscape, they captured a sense of the place.

Solitude and silence in the Grand Canyon

At the beginning of the 1900s, Grand Canyon tourists felt that they were in an exceptional sonic space that was distinctly different from the United States' urban and industrial areas. The extensive quiet they experienced there was for these visitors a particular characteristic of the Canyon. To them the Grand Canyon's 'silence' represented a virgin untamed wilderness where nature was in control, not humans. Arizona was a sparsely populated backwater in the 1800s; the 1870 census recorded that there were less than ten thousand residents in the territory (Arizona did not receive statehood till 1912).¹⁶ For tourists, the Grand Canyon, reachable only

¹³ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 107.

¹⁴ Ibid.

¹⁵ Corle, *The Story of the Grand Canyon*, p. 151.

¹⁶ The United States Census Bureau [online]. [cited 1 February 2018]. Available from: <<https://www.census.gov/en.html>>.

on foot, horseback or by stagecoach, was well off the beaten track. However, boosters were aware of the commercial potential of the Canyon, which they considered to be as vast as the Canyon itself.

In the 1880s the beginnings of a tourism industry materialised, with the construction of accommodation on the South Rim. By 1896 James Thurber had begun transferring tourists to the Canyon by stagecoach to the boarding lodge he had constructed at the Bright Angel Trailhead.¹⁷ It was, however, the entrepreneur Fred Harvey and the building of the Grand Canyon Railroad that was the catalyst for the expansion of tourism. The Atchison, Topeka and Santa Fe Railway that whisked tourists along the sixty-five-mile ride from Williams to the South Rim for the first time in 1901, was a far more comfortable experience than the dusty, bumpy and noisy stagecoach ride. The Fred Harvey Company made a major investment at the Grand Canyon when the company opened the El Tovar Hotel that was located virtually on the edge of the South Rim in 1905. The then ninety-five-room hotel, that offered electric lights, hot and cold running water and high-quality meals served by 'Harvey Girls' dressed in their smart uniforms, was a slice of luxury in the great outdoors of Arizona. For tourists with the financial means, the Grand Canyon had not only been made accessible but offered a luxury holiday destination as well.

For Americans that ventured to the Grand Canyon, its stupendous magnificence was further proof to them that the United States had within its territory the most sublime landscapes in the world. Before long the Canyon became

¹⁷ Michael F. Anderson, *Living at the Edge: Explorers, Exploiters and Settlers of the Grand Canyon Region* ([n.p.]: Grand Canyon Association, 1998). Anderson provided a good account of early boarding facilities at the Grand Canyon.

a well-trodden path on the trail of the celebration of American natural exceptionalism. Zane Grey, the popular novelist of the American West, was one of the first travellers to stay at the El Tovar, and he was enthralled by the Grand Canyon. Grey's nostalgic idealisation of the American frontier was echoed in his comments on the Canyon's soundscape. Grey scribbled in the hotel's guest register in 1906 that 'one feature of this ever changing spectacle never changes – its eternal silence...there is always that same silence – a silence that keeps its secret.'¹⁸ He noted the Canyon as an enigmatic place that was not readily revealed to him. While the United States' sonic identity was undergoing comprehensive change due to urbanisation and industrialisation, the Grand Canyon represented to Grey an archive of the nation's original soundscape. Grey heard in the quiet of the Canyon secrets and mysteries that furthered its allure.

Vacationers, who visited the Grand Canyon in the early 1900s, before mass-tourism and the influx of mechanised machinery, often noted the Canyon's silence. The guest register of the El Tovar revealed how the extensive quiet of the Canyon made a distinct impression on how visitors comprehended the place. Chicago tourist Laura Fiyeen, jotted down in the register in November 1905, that the Canyon was a place of 'vast silence.'¹⁹ Anna Nully of New York City, who visited in the same year, referred to the Canyon as a place of 'great silence.'²⁰ Tourists continued to note the deep quiet of the Canyon over successive years. In 1909 Sarah Dorn of Cincinnati wrote of the Canyon's 'silent grandeur [and] complete silence' and D. Mason of Pittsburgh remarked on its 'extreme silence.' Visitors were still commenting in 1912

¹⁸ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 106.

¹⁹ Ibid.

²⁰ Ibid.

on the Canyon as a 'grand...silent and peaceful' place.²¹ Tourists enjoyed the silent and unbroken solitude that they found at the Grand Canyon. Descriptions of silence as a positive experience were at odds with those explorers who had ventured into the American West scarcely half a century previously and interpreted the quiet of the country's interior as intimidating and disturbing. By comparison visitors to the Grand Canyon in the early years of the twentieth-century revelled in its depths of quietude.

Urban areas became increasingly noisy in the Gilded Age as industrialists built factories to fuel the rise of the United States as a global economic power. By contrast, tourists who ventured to the Grand Canyon experienced a place of tranquillity, and a sonic refuge from the noise of industrialisation. Americans were becoming increasingly exposed to mechanical noise as the industrial revolution took hold in the United States after the Civil War, and the rising decibel level in urban areas was considered a social ill by progressives. Julia Barnett Rice, the philanthropist and social campaigner, was worried by how increasingly loud her native New York City had become. Rice, enthused by the Progressive movement's ideals for the betterment of society, campaigned for a reduction in city noise, which she considered detrimental to New Yorkers' wellbeing. She established the American Society for the Suppression of Unnecessary Noise in 1906 and argued that noise was a nuisance and harmful to personal and national health. Rice led a campaign to silence the tugboats that operated on the Hudson River, which she argued made life a misery for the sick and insane confined in hospitals within earshot

²¹ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 113.

of their whistles.²² By 1914 a number of American cities had established quiet zones around hospitals, schools and other noise sensitive areas in an attempt to provide relief from the sonic bombardment.²³

While urban areas displayed the sonic signatures of a mechanically disturbed nation, the quiet and peaceful vistas of the Grand Canyon became an increasingly valued experience. Natural quiet was heard as the antithesis of mechanised noise, and tourists welcomed the aural experience. J. B. Priestley, the British novelist and playwright, noted this sense of solitude and peace when compared to the noise of the machine. He described an experience he had of a freight train near a hut he stayed in on the banks of the Hassayampa River in Arizona. Priestley recalled how the train had made a 'long dissonant mournful cry' as it descended down the valley, but after passing there had been an 'enormous silence...an ironical silence, like that which comes at the end of a noisy epoch.'²⁴ Priestley thought that the experience of hearing natural quiet was accentuated after he had heard industrial noise; a sound that he considered out of place in the normal quiet of the valley.

For tourists at the Grand Canyon, the lack of human-made noise made them more acutely aware of the sounds of the Canyon. They could relate to Priestley's experience; the 'mournful cry' of the train represented to tourists their everyday lives, whereas the 'enormous silence' that followed, characterised their experience at the Grand Canyon. Contemporaries considered the Canyon a barricade to the spread of industrial noise. Poet C. R. Pattee wrote in his work, *The Grand Cañón of*

²² Thompson, *The Soundscape of Modernity*, p. 121.

²³ *Ibid*, p. 126.

²⁴ J. B. Priestley, *Midnight in the Dessert: A Chapter of Autobiography* (London: Heinemann, 1937), p. 2.

the Colorado (circa 1899), that it was a place where ‘silence reigns’ and ‘where science too is mute.’²⁵ Pattee compared the quiet he heard there with the noise of industry and argued that the Canyon was a place that the screech of industrialisation, which he referred to as science, had not penetrated.

Visitors heard in the ‘silence’ of the Canyon the sounds of a pre-industrial age, a soundscape unaffected by human activity and undisturbed by the sounds of modern life. Bernie Krause argued that in the early industrial period Americans heard the noise of industrialisation as the sound of progress; that the whine of machinery represented the production of goods for the betterment of society.²⁶ Industrial noise brought a mental image of production, labour and modernity. The Grand Canyon’s lack of human-made noise represented the opposite, a place unaffected by ‘progress’ that was characterised by a more simple, uninhibited and unencumbered life. This was reflected in Priestley’s remark that the Grand Canyon was a place where the sounds he heard represented a bygone age. He wrote, ‘there must be the profoundest of silences there because all the noises made throughout these years have no existence in this instantaneous vision of the ages.’²⁷ Priestley argued that the Grand Canyon was a place where thoughts of modern living were removed from the consciousness.

Visitors commented that through the sonic identity of the Grand Canyon they imagined a place unchanged throughout time that provided a barrier to the

²⁵ John Hance, *Guide Story-Teller and Path-Finder, Personal Impressions of the Grand Cañón of the Colorado River, Near Flagstaff Arizona. As Seen Through Nearly Two Thousand Eyes, and Written in the Private Visitor’s Book of the World Famous Guide*, (San Francisco: The Whitaker & Ray Company, 1899), p. 130.

²⁶ Bernie Krause, *Wild Soundscapes: Discovering the Voice of the Natural World – A Book and CD Recording* (Berkeley: Wilderness Press, 2004), p. 11.

²⁷ Priestley, *Midnight in the Dessert*, p. 288.

expansion of modern noise. An unnamed tourist claimed in 1912 that the quiet of the Canyon represented to him a 'monument for the dead centuries of time' - claiming that the place was immune to external influences.²⁸ A visitor from St Louis in 1911 endorsed the idea that the Canyon was a sonic bulwark to modernity; he declared the 'Canyon's great rebuttal to mankind [was] its silence!'²⁹ A Texan tourist echoed these sentiments when he wrote in 1912 that for him the Canyon was 'the muffler of infinity on the vocal exhaust of human presumption.'³⁰ These tourists came from places that were becoming increasingly noisy; by the late 1800s St Louis had a substantial industrial centre that included paint manufacturing, brickmaking, slaughterhouses and breweries.³¹ In Texas the oil industry was well established by the turn of the century and there were nearly 300 oil producing wells in the Corsicana, and Dallas was a rapidly expanding city with just under 100,000 residents.³² By comparison, visitors considered the quiet of the Canyon a bulwark to the advance of industrialisation, a place where the machine had not yet entered into the garden. Visitors, in the quietude of the Canyon, had a sense of being in a different era; a time before mechanised machines had increasingly begun to dominate the nation's sonic identity.

²⁸ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 107.

²⁹ Ibid, Folder 113.

³⁰ Ibid, Folder 115.

³¹ Andrew Hurley, 'Busby's Stink Boat and the Regulation of Nuisance Trades, 1865-1918', in *Common Fields: An Environmental History of St. Louis*, ed. by Andrew Hurley (St. Louis: Missouri Historical Press Society, 1997), pp. 145-162 (p. 148).

³² See Texas Almanac [online]. 'City Population History from 1850-2000'. [cited 1 February 2018]. Available from: <<https://texasalmanac.com/sites/default/files/images/CityPopHist%20web.pdf>> and, American Oil and Gas Historical Society [online]. 'First Texas Oil Boom'. [cited 1 February 2018]. Available from: <<https://aoghs.org/petroleum-pioneers/texas-oil-boom/>>.

Comprehending the Grand Canyon through its sonic identity

Lack of, but not a total absence of sound at the rim of the Canyon, encouraged visitors to listen more intently to their surroundings. Tourists, who were unaccustomed to such a quiet environment, became more attuned to the Canyon's aural qualities. Salome Voegelin in her philosophical study of listening to noise and silence argued that when in areas of extreme quiet people paid greater attention to their sonic environment. She wrote that silence did not represent 'the absence of sound but the beginning of listening,' and that through listening people attained an enriched understanding of their environment.³³ Tourists regularly considered and commented on the sounds that they heard at the Grand Canyon, demonstrating how attentively they listened. Professor of French, Aimée Boutin, argued in her work on the soundscape of nineteenth century Paris, that listening was effective in enhancing a sense of place. She argued that unlike the visual sense 'hearing forces social engagement and participation.'³⁴ Boutin's argument can be extended to the Grand Canyon as well; that through listening visitors were brought to a deeper understanding of place.

Tourists, undisturbed by mechanical noise, reached a higher level of contemplation and consciousness in the natural quiet of the Grand Canyon. A visitor in 1911 claimed that the soundscape had heightened his self-awareness. He described how the Canyon impressed on him a 'quiet reign of thought' that made

³³ Salome Voegelin, *Listening to Noise and Silence: Towards a Philosophy of Sound Art* (New York: Continuum, 2010), p. 83.

³⁴ Aimée Boutin, *City of Noise: Sound and Nineteenth-Century Paris* (Urbana: University of Illinois Press, 2015), p. 32.

him 'feel the great drama of life.'³⁵ Priestley expressed a sense of the Grand Canyon as a place of deliberation and reflection. He remarked that the Canyon had a 'silence so profound' that it was 'as if our ears had been captured for ever (sic), drowned in these deeps of quiet.'³⁶ In the noise and bustle of an industrial nation, the Canyon provided Priestley with a place where he could be more conscious of his personal thoughts without distraction. Native Americans also demonstrated a sense of understanding the Canyon through its soundscape. The Havasupai who had lived in the inner canyon for over a thousand years named the Canyon due to its sonic identity rather than its visual landscape. They called it, *Hack-atai-a Chic-a-mi-mi*, the name referred to a roaring sound caused by either wind or water. When going to the Canyon, the Havasupai would state, *Ya-ma-gi Hack-a-tai-a*, which meant, 'I go to the place of the roaring sound.'³⁷ For both residents and visitors of the Canyon, listening provided a deeper and more comprehensive understanding of place. Through listening they were able to both understand and express their experience of the Grand Canyon.

Visitors associated the quiet of the Canyon with its immensity; silence was one of the Grand Canyon's particular qualities that made it grand. Aurally the Canyon appeared vast and devoid of human influence, and through listening, visitors enriched their understanding of the place. Acoustic ecologist, R. Murray Schaffer, remarked that 'hearing is a way of touching at a distance,' and that a sense of

³⁵ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 113.

³⁶ Priestley, *Midnight in the Desert*, pp. 285-286.

³⁷ George Wharton James, *In and Around the Grand Canyon* (Boston: Little, Brown & Company, 1898), p. 302.

spatiality occurred through listening.³⁸ Schaffer's argument, when applied to the Grand Canyon, was particularly prescient. Due to the presence of only a low level of sound audible from the rim, visitors achieved a sense of being in an extensive landscape. The Canyon as heard from the rim lacked sonic markers, for example, the sound of a waterfall, which meant the sense of vastness was amplified. Americans in urban areas were aware of sounds that marked spatiality, a church bell, railroad or street corner provided sonic boundaries to a place. However, these sonic markers were largely absent from the rim of the Canyon.

Intensified by the lack of human-made noise and the expanse of the physical landscape, the Canyon represented a place beyond the limits of human control. Visitors were constrained in their comprehension of the place by the sense of sight, as they were only capable of seeing what was within direct eyesight.³⁹ However, listening provided a complete field of knowledge, and a greater sense of the immensity of the Canyon, than the visual sense did. Philosopher Don Ihde described this as a 'field shape' and that sound surrounded people and generated a sense of being in 'embodied positionality.'⁴⁰ As the Grand Canyon was a sonic space largely devoid of human aural interference at this time, there was an absence of human-made sonic controls, bells and sirens for example, that if present would have

³⁸ R. Murray Schafer argued that 'hearing is a way of touching at a distance.' See, Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, p. 11.

³⁹ 'the visual field of each eye subtends a visual angle of about 170 degrees in the horizontal plane and there is almost complete overlap between the visual fields of the two eyes', and approximately 70 degrees above and 80 degrees below the horizontal. See: Andrew M. Colman, *A Dictionary of Psychology* (Oxford: Oxford University Press, 2015).

⁴⁰ Don Ihde, *Listening and Voice: Phenomenologies of Sound* (Albany: State University of New York Press, 2007), p. 75.

mentally removed people from the Canyon.⁴¹ In villages, towns and cities, sounds were utilised as sonic indicators of control; the bell that called worshippers to church, the whistle that brought workers to factories.⁴² As explored by the historian Alain Corbin in his work on village bells in nineteenth-century France, bells created an auditory field of control and were the sound of authority.⁴³ Within the Canyon this human authority for making noise was absent; natural sounds dominated the soundscape and Nature was heard as the dominant authority, not humankind.

Symbolism in the Grand Canyon's soundscape

Early European migrants to North America believed that the untamed lands of the continent were a howling wilderness populated by wild beasts, demons and savage natives; a belief that was predicated on religion, folklore and omens. While tourists did not fear what they heard at the Grand Canyon, they often still explained natural sounds through traditional cultural beliefs. Tourists, like colonial Americans before them, thought that natural sounds resonated with symbolic meaning and they heard the Canyon soundscape as the authoritative voice of a Christian God. When tourist Laura Fiyen visited the Grand Canyon in 1905, she rationalised the natural sounds she heard through religious reference. For her, the sounds of the Canyon were as representative of her Lord as they were of nature itself. Fiyen,

⁴¹ Tourists would have been able to hear the sound of the Atchison, Topeka and Santa Fe Railroad that operated between Williams and the South Rim of the Canyon by September 1901. However, the author found no mention of this in the archives, though it was noted by John Muir. The author heard the train horn while at Indian Gardens, 4.8 miles down the Bright Angel Trail in May 2016. The horn now is louder than during the period covered in this chapter.

⁴² See: David Garrioch, 'Sounds of the City: The Soundscape of Early Modern European Towns', *Urban History*, 30.1 (2003), 5-25 (pp. 16-17). Hendy, *A Human History of Sound and Listening*, pp. 105-110.

⁴³ Corbin, *Village Bells: Sound and Meaning in the 19th Century French Countryside*.

moved spiritually by the sounds she heard, proclaimed, 'Grand Canyon. Greatest text. Sublimest (sic) Sermon. Finest Benediction. Every blade a harpstring (sic), every tree a tongue, every rock a voice, eloquent in silence, singing its praises to its creator.'⁴⁴ Fiyeen gave the soundscape of the Grand Canyon agency and attributed the sounds to a message from and in praise of God. She was not alone in her interpretation of the Canyon's soundscape as a religious experience. The Andersons from Dallas, Texas, visited the Canyon in 1905 and considered it a 'silent solemn elegant expression of the being and power of God.' An Illinoisan visitor in 1905 described the Canyon as a place of 'sermons in stone,' and New Yorker Edward Rosenthal recommended in 1906 that more people should visit the 'Grand Canyon and listen to this eloquent preacher!'⁴⁵ The Grand Canyon's sonic identity - the sound of wind, birdsong and water - generated in visitors an imagined aural tribute to God through natural sermons, hymns and prayers. The canyon that rose from the Colorado River did not just represent a visual manifestation of the glory of God as a natural cathedral, but a celebration of God in sound.

The 'silence' of the Grand Canyon occasioned in visitors thoughts of being in a place of religious worship. Tourists heard in the extensive quiet a sonic identity similar to that of monasteries, churches, and cathedrals; all places of quiet spiritual devotion. The Grand Canyon reminded visitors of these respectful, hushed and quiet spaces, and was considered a similar place where people could reflect on their own relationship with God. Hell, by contrast, became associated with a place of noise, where a cacophony of tumultuous sounds obscured the voices of Christian martyrs

⁴⁴ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 106.

⁴⁵ Ibid.

proselyting the glory of God.⁴⁶ The cities of the United States represented places of noise, discord, and disharmony, far removed from the hushed quiet of the Grand Canyon. Visitors did not hear the voice of God within the screech of a train, the roar of a baseball crowd or the shrill cry of a factory whistle, as these were sounds created by humans; but in nature where God's work appeared to them to be omnipresent, sounds were interpreted as the voice of God. Consequently, tourists of a religious disposition at the beginning of the twentieth century afforded the Grand Canyon the same respectful silence that they practised in church. Standing on the South Rim in 1909, overcome with emotion looking into the abyss, a tourist remarked that he stood, 'silent with a feeling almost of reverence.'⁴⁷ There was a religious quality in the soundscape of the Grand Canyon, which visitors found particularly enlightening.

The not so silent Canyon

Tourists' commented on hearing the sound of hymns, the voice of the preacher and the strum of harp strings in the Grand Canyon. They wrote of hearing these sounds but also described the Canyon as a place of 'silence.' But what commentators at the Grand Canyon referred to as 'silent' at the beginning of the twentieth century was, in fact, natural quiet. The Swiss philosopher Max Picard misrepresented nature when he described it as a silent space. He claimed that the 'silence of nature is permanent,' 'the alteration of the seasons is covered by silence,'

⁴⁶ Hillel Schwartz, *Making Noise: From Babel to the Big Bang and Beyond* (New York: Zone Books, 2011), p. 69.

⁴⁷ NAU, Flagstaff, SCA, 'Impressions of the Grand Canyon', Folder 107.

and ‘the things of nature are filled with silence.’⁴⁸ Picard, by referring to nature as a silent space, implied an absence of life. Silence has been used as an evocative and powerful word in literature, artistic and religious spheres. Patrick Shen’s 2016 film, *In Pursuit of Silence*, and Gordon Hempton’s 2009 book, *One Square Inch of Silence*, are examples of where the term silence has been used to promote an emotive response to natural spaces when heard in contrast to urban areas.⁴⁹ The word ‘silence’, when used in the context of the natural environment, has excluded the rich sonic diversity of natural areas. Rachel Carson, the scientist and author, in her 1962 environmental classic *Silent Spring*, most successfully used the word silent to provide a sense of the natural environment.⁵⁰ She tried to convey what nature would sound like if the environment continued to be ravaged by pesticides; she argued that under such circumstances the natural world would be plunged into silence. Carson used this powerful descriptive because the idea of the natural environment without any sound was strikingly odd.

Visitors referred to the Grand Canyon as silent not because they heard no sound, but because they compared it to the sounds of their everyday lives. While the Grand Canyon has in certain areas a low ambient decibel level, it has never been technically silent. The National Park Service commissioned a report on sound levels in the Canyon in 2005 and noted an ambient decibel level range in four vegetation areas of between 16.8dBA and 24.7dBA.⁵¹ Though the Canyon is extremely quiet in

⁴⁸ Max Picard, *The World of Silence* (Wichita: Eighth Day Press, 2002), pp. 136-137.

⁴⁹ *In Pursuit of Silence*. Dir. Patrick Shen, Transcendental Media, 2017. Gordon Hempton and John Grossman, *One Square Inch of Silence: One Man’s Quest to Preserve Quiet* (New York: Free Press, 2009).

⁵⁰ Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 2002).

⁵¹ While the Grand Canyon has areas of low natural ambient sound, there is not a total absence of sound. The National Park Service investigated the ambient decibel level in the Canyon in 2005. 51

places (an average whisper is about 20dB), it is not silent. Silent, from the Latin 'silere' implied a space void of sound, and from late-fourteenth century English the term denoted an absence of sound. Common phrases that have referred to silence have implied a total absence of sound. The Oxford English Dictionary defined the phrase, 'as silent as the grave', as 'hushed, containing no natural noise.'⁵²

John Cage, the composer and musical theorist, noted for his experimental compositions that included works without instrumental sound, argued that nature was never a silent place. Cage argued in 1973 that in nature, 'there is no such thing as an empty space or an empty time. There is always something to see, something to hear. In fact, try as we may to make a silence, we cannot.'⁵³ He demonstrated this theory in his non-instrumental performance composition 4'33", which encouraged the audience to listen to the sounds that they heard around them. First performed in Woodstock, New York State, in 1952, the concert hall was set outside and open to the surrounding forest. The audience heard the sounds of nature and other concert-goers, rather than the sounds of human-made music.⁵⁴ Cage recalled

Four areas were chosen for the study that represented the major vegetation areas of the Canyon and was purposely chosen away from human-made sounds. The daily natural ambient sound levels (all natural sounds in a given area, excluding all mechanical, electrical and other human-caused sounds) ranged in the four areas from 16.8dBA to 24.7dBA. To put this in perspective it is necessary to compare these to various everyday sounds; a flushing toilet is in the vicinity of 75dBA, a quiet residential area in Chicago at night 40dBA and a computer 37-45dBA.⁵¹ Humans, with good quality hearing, can hear sounds starting at 0dBA and the threshold of pain is at 130dBA (the sound of a jet aircraft taking off at 100 meters). An increase of 10dBA is needed for the sound being heard to be doubled in loudness. See: Skip Ambrose, 'Sound Levels in the Primary Vegetation Types in Grand Canyon National Park, July 2005'. [online]. NPS Report No. GRCA-05-02, 25 January 2006. [cited 19 January 2017]. Available from: <<https://www.nps.gov/grca/learn/nature/upload/ambient-sound.pdf>>.

⁵² Noise accepted definition given. Oxford English Dictionary 2015.

⁵³ John Cage, *Silence: Lectures and Writings* (London: Marion Boyars, 1973), p. 8.

⁵⁴ John Cage's 4'33", was a silent piece first performed at the Maverick Concert Hall, Woodstock, New York State, 29 August 1952. The back of the concert hall was actually out-of-doors and open to the surrounding forest. The concert hall was within the Catskill Mountains, and the audience heard the sounds of nature, rather than the sounds of the machine. The area was symbolically linked to the artists of the Hudson River School who celebrated the American landscape in their paintings. See,

the audience's experience - 'what they thought was silence, because they didn't know how to listen, was full of accidental sounds. You could hear the wind stirring outside during the first movement. During the second, raindrops began pattering the roof, and during the third the people themselves made all kinds of interesting sounds as they talked or walked out.'⁵⁵ Cage wrote that even when in an anechoic chamber he still heard two sounds, his nerve's systematic operation and the circulation of his blood. Cage argued that silence was in terms of human interpretation of the sound a social construction, as silence did not exist within normal natural conditions. Don Ihde claimed that the natural environment was not silent and that even in places of quiet, 'sound is continuously present to experience', and that sound 'penetrated awareness.'⁵⁶

Tourists considered the Canyon silent due to the difference in levels of sound between the soundscape of urban areas and that of the Grand Canyon. Historian Emily Thompson argued that American cities became increasingly loud over the course of the nineteenth century; she stated that the urban soundscape came to incorporate, 'the clanking din of the factory, the squeal of the streetcar [and] the noise of people and animals...'⁵⁷ For Americans subjected to the noise and bustle of city life, the sound of a gentle breeze or a passing swift heard at the rim of the Grand Canyon was by comparison silent. However, this was not an accurate representation of the complete Grand Canyon soundscape. A tourist standing next to the Colorado River as it crashed and roared over the rapids at Lava Falls certainly could not have

Kyle Gann, *No Such Thing As Silence: John Cage's 4'33"* (New Haven: Yale University Press, 2010), p. 28.

⁵⁵ John Cage quoted in, Gann, *No Such Thing as Silence*, p. 4.

⁵⁶ Don Ihde, *Listening and Voice: Phenomenologies of Sound* p. 81.

⁵⁷ Thompson, *The Soundscape of Modernity*, p. 117.

described the Canyon as 'silent.' Thunderstorms, the sound of cascading water on the river and animal vocalisations all contributed to the diversity of sound. Tourist depictions of the Canyon as a silent place were both time and location specific, with representations of the sonic identity of the Canyon being made most often from the relative quiet of the rim.

The sound of the Colorado River in the Grand Canyon

Not every person found the Grand Canyon a silent realm. George Wharton James, the lecturer, photographer and popular travel writer, wrote of his aural experience in the Canyon in his 1898 publication, *In and Around the Grand Canyon*. For James, the Canyon was a place that exhibited a diverse and rich sonic environment. In particular he noted the sound of water. Visitors were able to (and still can when human-made noise does not interfere) hear the sound of the Colorado River from the rim. At Pima Point on the South Rim, the sound of the river cascading over Granite Rapids can be faintly heard on a quiet day as the sound echoes up the canyon walls. Yet it was not until visitors descended below the rim and down towards the river that its sounds became a distinct part of their aural experience. James recalled his descent down the 'Old Trail' to the river as a truly sonic event. 'The babbling of the little stream rippling over the rocks has filled our ears all the way down,' James wrote, 'but now its noise is like the cry of an infant compared with the deep bass voice of a giant roaring as in a passion of pain, and in awe-stricken

wonderment I listen. Hark! The River at Last!’⁵⁸ James detailed a linear aural journey down into the bowels of the Canyon, as the sound of water became increasingly dominant. He continued to describe the sound of the river and how it was a ‘raging, roaring, surging, boiling torrent’ and that the gorge was a ‘mass of turbulent, seething, hissing rapids.’⁵⁹ Whereas at the rim and on the upper slopes of the trails the Canyon exhibited a hushed quiet, in areas situated near to the river there was a crescendo of sound as the vast energy of the Colorado River was released. According to James, the Grand Canyon’s sonic identity in this area was not one of silence, but of the sound of powerful natural forces.

In 1869 John Wesley Powell, the explorer and one-armed veteran of the Civil War, commanded the first expedition to run the Colorado River through the Grand Canyon. In his narrative of the expedition, Powell provided his readers with a thorough description of the expedition’s aural experience. The voyage down the Green and Colorado Rivers was a journey into uncharted territory. Distance from supplies, extreme temperatures and fatigue often made the expedition a dangerous and unnerving adventure. The treacherous rapids that littered the Colorado, threatened to upend boats and spill travellers, their provisions and precious scientific instruments into the waters, were a constant concern. Powell’s descriptions of the sounds heard on the river demonstrated the emotions felt through listening to the aural environment and how sound affected the expedition.

The river’s sounds revealed to the expedition an expectation of calm, peaceful water or potentially dangerous rapids. The explorers understood that a

⁵⁸ George Wharton James, *In and Around the Canyon*, pp. 250-252.

⁵⁹ *Ibid.*

quietly running river offered no imminent danger, but when the waters were raised to a roar the travellers were consumed with fear of rapids that lurked downstream. Powell claimed that the Colorado River had been created by, 'a hundred roaring rivers', which signified the concern he felt over the rapids, the sounds of which he associated with darkness and loneliness.⁶⁰ He described how streams ran at 'depths almost inaccessible,' and how they made a 'wild music which but adds to the gloom of the solitude.'⁶¹ Powell and the expedition heard the roaring sounds of the river like a siren warning them of forthcoming danger.

Powell made numerous references to sound, both those he found pleasant and others that brought fear of treacherous conditions. Analysis of his writings indicates that he considered the sound of the river a valued, constant and consistent gauge of its condition. With the meandering nature of the Colorado River (and Green River) through the landscape, the roar of cascading water was often heard before the rapids were viewed. This generated a sense of unease, of sounds heard and objects (more often than not dangerous rocks) unseen. Therefore, Powell often resorted to the aural over the visual sense as an indicator of conditions downstream.

Powell noted:

31 May, 'as the twilight deepens, the rocks grow dark and somber (sic); the threatening roar of the water is loud and constant, and I lie awake with thoughts of the morrow and the cañons to come.'

⁶⁰ John Wesley Powell, *First Through the Grand Canyon: Being the Record of the Pioneer Exploration of the Colorado River in 1869-70* (New York: Outing Publishing Company, 1915), p. 18.

⁶¹ *Ibid*, p. 21.

1 June, 'at last we come to calm water, and a threatening roar is heard in the distance'; 17 June, 'we run down to the mouth of the Yampa River...the roar of its waters were heard increasingly from the hour we entered until we landed';

14 August, 'down in these grand gloomy depths we glide, ever listening, for the mad waters keep up their roar; ever watching, ever peering ahead, for the narrow cañyón is winding...we listen to the falls, and watch for rocks...'

14 August, 'at about eleven o'clock we hear a great roar ahead and approach it cautiously...the sound grows louder and louder as we run...the rushing waters break into great waves on the rocks, and lash themselves into a mad white foam';

29 August, 'only during the few hours of deep sleep, consequent on hard labour, has the roar of the waters hushed.'⁶²

As Powell's observations demonstrated, the sound of the river was a constant and often disturbing soundtrack to their expedition. Powell's account demonstrated the importance of the Colorado's sonic identity on the expedition's experience of the journey. They comprehended the Canyon through the river's sound that could be either quiet and unthreatening, or, roaring and dangerous. Listening also had an effect on the psychological bearing of the travellers. The roar of the river entered Powell's consciousness and his imagination of the river fed into his descriptions of previous visitors to the Canyon and how they perceived the place. He wrote of the 'stories of parties wandering on the brink of the cañon, vainly endeavouring to reach the waters below, and perishing with thirst at last in sight of the river which was

⁶² Ibid, p. 46, p. 48, pp. 80-81, p. 203, pp. 205-206, p. 253.

roaring its mockery into dying ears.⁶³ His nemesis was the roaring sound of the river as it announced the presence of dangerous rapids.

Powell was not alone among the expedition members in listening to the sound of the Colorado. George Young Bradley, a former U. S. Army Private, signed onto Powell's expedition in 1868. Bradley did not need that much persuading as he noted in his diary that he would be 'willing to explore the River Styx' to avoid performing military service.⁶⁴ Yet with the ordeal of the expedition and his evident dislike of Powell, the army may have appeared at times to have been more appealing (as may have the River Styx).⁶⁵ Bradley, like Powell, heard the sound of the raging Colorado River as it cascaded over rapids as a threat to his safety. Bradley, wrote of the loss of the boat *No Name* during the early stages of the expedition. He noted that the party were 'rather low spirited [sic]' after their loss and that they had to 'camp right at the head of a roaring rapid more than a mile in length and in which we have already lost one of our boats and nearly lost three of our number.'⁶⁶ In the darkness Bradley could not see the river, but he could not shut his ears to its roar that engaged his thoughts with notions of despair and tragedy. The inescapable roar of the river was a constant sonic reminder of the dangers the expedition faced. Unlike the visual sense, Bradley could not ignore the danger that the thunderous crash of water represented as the sound never ceased.

⁶³ Ibid, p. 24.

⁶⁴ 'George Y. Bradley's Journal, 24 May to 30 August 1869', ed. by William Culp Darrah, pp. 31-72 'The Exploration of the Colorado River in 1869', *Utah Historical Quarterly* XV, (1947), (p. 10).

⁶⁵ Bradley was unimpressed by Powell's choice of campground. On 11 June he wrote in his journal 'the Major as usual has chosen the worst camping ground.' *George Y. Bradley's Journal*, (p. 37).

⁶⁶ Ibid, (p. 36).

When the clanging din of a thunderstorm ripped through the appropriately named Cañon of Desolation on 9 July 1869, it sounded to the pious Bradley as if he was in the depths of hell. Bradley wrote in his diary that ‘a terrible gale of dry hot wind swept our camp and roared through the cañon mingling its sound with the hollow roar of the cataract making music fit for the infernal regions. We needed only a few flashes of lightning to meet Milton’s most vivid conceptions of hell.’⁶⁷ The rumble of the storm merged with the roar of water that made him ever more conscious of his perilous position. However, just as much as the crescendo of water made Bradley fearful, the moments of deep quiet he experienced during the expedition were often just as disconcerting. Having run nineteen ‘roaring rapids’ and exited ‘Coal Cañon’, the quiet, desolate and uninhabited landscape furthered his feelings of discontent.⁶⁸ ‘The whole country,’ Bradley wrote, ‘is inconceivably desolate, we float along a muddy stream walled in by huge sand-stone [sic] bluffs that echo back the slightest sound. Hardly a bird save the ill-omened raven or an occasional eagle screaming over us...three boat and nine men, hundreds of miles from civilisation...’⁶⁹ Bradley was more acutely aware of his situation by the sounds he heard and this led him to think of ill omens – he heard in the cry of the raven a sense of isolation and impending doom. A storm on 17 July added to his despondent mood. Bradley argued that the peals of thunder ‘seemed as if commissioned to make double desolate this regeon [sic].’⁷⁰ Quietude, roaring rapids and the high-energy sounds of crashing thunderstorms heightened the senses and thoughts of loneliness, fear and desolation. Powell’s and Bradley’s writings of their sonic

⁶⁷ Ibid.

⁶⁸ Ibid, (p. 49). “Coal Cañon” was renamed Gray Canyon.

⁶⁹ Ibid, (p. 50).

⁷⁰ George Y. Bradley’s Journal, (p. 51).

experience down the Green and Colorado Rivers often ran parallel with those of Frémont; sounds, or lack of them, compounded their sense of isolation and distress.

As the expedition exited the Grand Canyon into the Grand Wash, Powell noted the relief that the expedition felt as they floated away from the rapids and entered calmer waters. At this moment of release thoughts of his experiences in the Civil War came to Powell's mind. Donald Worster in his biography of Powell, *A River Running West*, wrote of Powell's emotions as the expedition entered the Grand Wash; 'for all the spectacle of wild, archaic nature he had witnessed, for all the beauty and the intellectual challenge presented by the canyon, he now associated it with a fetid hospital tent, as earlier he had associated it with a prison.'⁷¹ What Worster failed to convey was the difference that Powell noted between the sonic identity of the canyon environment and that of the Grand Wash. Powell noted the radiance of the sky and 'floods of delirious music' that poured 'from the throats of birds', as they exited the canyon.⁷² Gliding out of the Canyon into calm, quiet and peaceful waters was as much an aural release from the roar of perilous rapids as from anything else. For Powell, the Grand Wash was a safe place that was represented through the sounds that he heard there.

'Only during the few hours of deep sleep, consequent on hard labour, has the roar of the waters hushed. Now the danger is over; now the toil has ceased; now the gloom has disappeared; now the firmament is bounded only by the horizon; and what a

⁷¹ Donald Worster, *A River Running West: The Life of John Wesley Powell* (New York: Oxford University Press, 2001), pp. 193-194.

⁷² Powell, *First Through the Grand Canyon*, pp. 251-252.

vast expanse of constellations can be seen! The river rolls by us in silent majesty; the quiet of the camp is sweet; our joy is almost ecstasy.⁷³

Powell's words were a poignant expression of his and the other expedition members' sense of their journey; the loud sounds of the roaring rapids that had signified danger were replaced by the quiet sounds of the gently flowing river.⁷⁴

Powell's journal demonstrated that he still enjoyed listening to the sounds of the Canyon in those moments when the roar of the rapids did not dominate his mind. His writings expose the diversity of the Grand Canyon's soundscape and that it was not solely the silent place guests at the El Tovar had written of. Birdsong was a sonic accompaniment to his journey, and it was a sound that he rejoiced in. Powell, when floating through calmer waters, wrote of listening to swallows; 'swift and noisy' and that they sat 'chattering from the rocks.'⁷⁵ He described how at daybreak on 6 June a 'chorus of birds' had woken him and that he listened to the 'morning concert' they performed.⁷⁶ In the Grand Canyon itself, after a period of rainfall, Powell recalled how rills formed brooks and then creeks that tumbled over the walls adding their 'wild music' to the sound of the Canyon.⁷⁷ Bradley heard in the sounds of a storm encountered near Bright Angel Creek the sounds of 'wild

⁷³ Ibid, p. 253.

⁷⁴ Frederick S. Dellenbaugh (artist and assistant topographer of the expedition), in his account of Powell's second expedition of 1871/72, made numerous references to the roar of the rapids. Again the sound acted as a sonic warning of upcoming danger. For example, he wrote, 'Before long night was full upon us and our wet clothes made us shiver. About a mile below a warning roar dead ahead told us to make land at once, for it would be far from prudent to attack a rapid in the dark.' Frederick S. Dellenbaugh, *A Canyon Voyage: The Narrative of the Second Powell Expedition Down the Green-Colorado River from Wyoming, and the Explorations on Land, in the Years 1871 and 1872* (New York: G. P. Putnam's Sons, 1908), p. 130.

⁷⁵ Ibid, p.54. Powell named the place 'Swallow Cañon' and is situated on the Green River in Utah.

⁷⁶ Ibid, p. 56.

⁷⁷ Ibid, p. 212.

music', though the 'musical little mosquitoes' he heard did not gain his approval as they continuously bit him.⁷⁸

The expedition brought their own cultural sounds into the environment of the Colorado River and its surrounding areas. The Powell expedition heralded not only a claim on the landscape through the process of naming places and the drawing of maps, but on its sonic identity as well. Powell's expedition brought with them firearms that they were keen to discharge on wildlife they encountered. George Bradley's journal made numerous mentions of the firing of rifles and pistols, with geese, beaver, rattlesnakes, mountain sheep, deer and even trout the victims. However, he was unimpressed by the success of the hunters in the party, reasoning that as they landed and the 'men begin to shoot and make a great noise' all the game in the area made a hasty retreat to safer parts.⁷⁹

Singing in camp was a way for the men to express themselves and create familiar sounds that reminded them of less dangerous and isolated places. However, being constantly within earshot of each other was at times a burdensome experience. Bradley, who was often critical of his companions, was not always enamoured by his compatriots singing talents. Andrew Hall, known as 'the Character' of the expedition sang to Bradley's 'edification'; 'all I can make out,' Bradley claimed was that 'he tears it out with a voice like a crosscut saw is the chorus...'⁸⁰ Bradley was a particularly pious man and expected the Sabbath to be respected as a day of quiet reflection. He scribbled in his journal on Sunday 18 July

⁷⁸ George Y. Bradley's Journal, (pp. 66 & 43).

⁷⁹ Ibid, (p. 38).

⁸⁰ Ibid, (p. 48).

with evident relief and approval that 'all has been quiet in the camp today, no work, firing of guns, no noise of any kind.' The experience of being in the canyon lands brought in him a desire to praise God and he lamented that 'though a thousand spires point Heavenward...no one sends forth the welcome peal of bells to wake the echoes of these ancient cliffs and remind us of happier if not grander scenes.'⁸¹ Bradley, like the guests of the El Tovar Hotel who would later gaze down into the Grand Canyon from its South Rim and hear God's presence, imagined the place a divine creation.

The Grand Canyon was a difficult place to comprehend but explorers and tourists alike located a sense of place from listening to its soundscape. Listening provided an understanding of the Canyon's spatiality and through its levels of quiet early visitors gained a sense of its vastness. Often heard as silent, the Canyon was, in fact, a place that displayed a rich and varied soundscape; from the depths of quiet heard on the rim to the roar of the Colorado River. Sound added cultural meaning to the place as well. The Grand Canyon was interpreted through a spectrum of religious and cultural belief systems that endowed the place with meanings that were created according to particular societal traditions. By the time people came to visit as tourists and seek out the United States backcountry in a celebration of nature, the Canyon's quietude was a highly valued experience, as the urban United States came increasingly to resemble the sounds of a modern and industrial nation. Natural sounds had come by the beginning of the twentieth-century to represent a significant part of the experience and enjoyment of the natural environment in the United States of America.

⁸¹ George Y. Bradley's Journal, (p. 52).

Chapter III

John Muir: Listening to Nature

'Even the blind must enjoy these woods, drinking their fragrance, listening to the music of the winds in their groves, and fingering their flowers and plumes and comes and richly furrowed boles.' John Muir, *Our National Parks*, 1901.¹

John Muir, the Scottish born naturalist, author and conservationist, arrived in San Francisco in March 1868 having travelled by ship from Cuba via New York City. While in Cuba, Muir had hoped to follow in the footsteps of the Prussian explorer Alexander von Humboldt, a person he greatly admired, and undertake an expedition to South America, but illness halted his plans. Muir's final destination was not the expanding seaport city of San Francisco, an energetic, chaotic, and noisy place after the discovery of gold at Sutter's Mill in 1848. His plan was to explore California's natural spaces. Muir later claimed that he asked a carpenter on the street for the quickest way out of the city. 'Where do you want to go?' the carpenter asked, 'anywhere that is wild', Muir replied.² Muir's idea of a 'wild' space was the Sierra Nevada Mountains and Yosemite Valley, a place he ended up dedicating much of his

¹ John Muir, *Our National Parks* (San Francisco: Sierra Club Books, 1991), p. 77.

² John Muir, *The Yosemite*, in *The Eight Wilderness Discovery Books* (Seattle: Diadem, 1992), p. 613.

life to promoting, conserving and exploring. Muir found in Yosemite's towering cliffs, alpine meadows and cascading waterfalls, the sublime manifestation of nature he had been searching for. Muir delighted in the scenery he saw, the aromas he smelt, the flavours he tasted, and the natural sounds he intently listened to.

Muir made countless references to natural sounds in his writings. His journals, letters and publications provided a detailed and passionate account of his enjoyment of the natural soundscape. Through writing of locations' sonic identities Muir conveyed a distinct and compelling sense of place that he was unable to accomplish solely through describing what he saw. Muir provided insightful analysis of natural soundscapes that were in line with his pioneering studies on glaciers in the Sierra Nevada.³ He described the natural soundscape through a spectrum of philosophical and theological beliefs that were grounded in his reading of the Bible, Romanticism and Transcendentalism.

Regarded as the 'father of the national parks' and the most influential commentator on American natural areas, Muir, founder and first president of the Sierra Club, was an avid promoter of outdoor recreation and conservation. He was influential among American elites and counted President Theodore Roosevelt and the naturalist Asa Gray amongst his friends. Muir was a literary success and his writings influenced generations of Americans on the meaning and importance of

³ For an account of John Muir's study of glaciers see Donald Worster, *A Passion for Nature: The Life of John Muir* (New York: Oxford University Press, 2008). Muir's findings were featured in the American Association for the Advancement of Science in 1874. Worster wrote, 'The AAAS abstract covers nine pages of small print and demonstrates an astonishing grasp of mountain sculpting acquired in a mere three or four years of intense study, sufficient perhaps to have won him a doctorate in any university of the day. It demonstrates a comprehensive and yet finely detailed understanding of the interaction of ice and rock over hundreds of square miles that far exceeded what the Whitney survey, which had mainly produced a good set of maps, had achieved in glaciology.' p, 197.

visiting and protecting natural spaces. Muir's magazine articles and books appealed, according to the historian Stephen Fox, on three levels; as nature descriptions in the 'tradition of Audubon and Thoreau', as travel accounts of California to a 'Europe-facing audience' and as 'adventure stories.'⁴ Muir introduced Americans to the national parks' aural qualities and argued that in a time of industrialisation, natural quiet was a valued and increasingly threatened resource. He claimed that listening to nature was a compelling reason for leaving the city behind and exploring the backcountry. Muir encouraged his readers to experience the diverse, tranquil and peaceful sounds of the parks that he held in sharp contrast to the noise of urban life. Muir argued that tourists needed to tread quietly so as not to disturb wildlife and immerse themselves in the natural soundscape. He told his readers not only to listen but also how to listen. Natural sounds alongside visual aesthetics drove Muir's campaigns to protect natural areas from the visual and sonic invasion of Euro-American culture.

Scholars have expressed amazement upon realising just how often Muir commented on natural sounds. Peter Coates was 'astonished at the frequency of references to so-called natural sound' that Muir made.⁵ Coates argued that despite Muir's frequent accounts of nature's auralities his descriptions were largely centred on geophonic sounds. Coates claimed that the sound of animate creatures were 'relatively muted in his pages, confined to birds (and a few squirrels)' and that this reflected the 'faunal impoverishment of the Sierra Nevada's ecological communities

⁴ Stephen Fox, *The American Conservation Movement: John Muir and his Legacy* (Madison, University of Wisconsin Press, 1981), p. 56.

⁵ Coates, 'The Strange Stillness of the Past: Toward an Environmental History of Sound and Noise', (p. 645).

by the late nineteenth century...'⁶ However, despite Coates' claim, Muir described far more than birdsong and the sounds of a 'few squirrels.' Muir avidly chronicled nature's sonic diversity.

Muir's journal entry from 1872, titled 'The Sierra', demonstrated the diversity of sounds that he wrote of and how attentive a listener he was.

'What wonders lie in every mountain day! Crystals of snow, splash of small raindrops, hum of small insects, booming beetles, the jolly rattle of grasshoppers, chirping crickets, the screaming of hawks, jays, and Clark crows, the –coo-r-r-r' of cranes, the honking of geese, partridges drumming, trumpeting swans, frogs croaking, the whirring rattle of snakes, the awful enthusiasm of booming falls, the roar of cataracts, the crash and roll of thunder, earthquake shocks, the whisper of rills soothing to slumber, the piping of marmots, the bark of squirrels, the laugh of a wolf, the snorting of deer, the explosive roaring of bears, the squeak of mice, the cry of the loon – loneliest, wildest of sounds...'⁷

The pleasure and excitement Muir found in listening to his surroundings was evident in this journal entry. It also demonstrated the astonishment that natural sounds elicited in him and how he described sounds to convey a sense of place. Writing of seeing a mouse, a goose and a partridge could not provide such a distinct sense of place as describing the sounds these animals made as well. Other historians have failed to recognise, or even mention, Muir's appreciation of natural sounds. Donald Worster in his comprehensive biography of Muir, *A Passion for Nature: The*

⁶ Ibid, (p. 636).

⁷ Linnie Marsh Wolfe, *John of the Mountains: The Unpublished Journals of John Muir* (Madison: University of Wisconsin Press, 1979), p. 92.

Life of John Muir, overlooked Muir's aural experiences. Worster wrote briefly of Muir hearing the sounds of urban life when he went to university in Wisconsin, but failed to represent or acknowledge the wider importance of sound to Muir.⁸ Steven Holmes, in his biography of Muir's early years, noted Muir's sensitivity to natural sounds and argued that he developed an attention to sound on his walk through the American South in 1868, but Holmes did not mention Muir's broader appreciation of the natural soundscape.⁹

Muir's contemporaries were though acutely aware of his enjoyment of the natural soundscape. Charles Van Hise, the progressive president of the University of Wisconsin, noted Muir's listening skills in his dedication of C. S. Pietro's sculpture of Muir in 1916. Van Hise said of Muir during his oration -

'The man who goes out to the wilds alone is a true lover of nature, not a lip worshipper. The mighty forests are sometimes so soundless that the ears only hear the circulating blood; at other times are a tumultuous mass of tossing boughs, swaying limbs and crashing trunks. In the impenetrable darkness of the forests at night, it is as if they did not exist, but the tense ear may catch a myriad mingled sounds – the moaning of the trees, the falling of the waters, and the joyful, weird, or angry cries of fowl and beast...To be alone with nature, oppressive and terrifying to the city born, was a delicious pleasure to Muir.'¹⁰

Historian Alice Morse Earle, a contemporary of Muir, acknowledged his enjoyment of natural sounds as well. She wrote a letter to Muir in 1909 and

⁸ Worster, *A Passion for Nature: The Life of John Muir*.

⁹ Steven J. Holmes, *The Young John Muir: An Environmental Biography* (Madison: University of Wisconsin Press, 1999), pp. 166-176.

¹⁰ Charles Van Hise, 'John Muir', *Science*, 45 (1917), 103-109 (p. 103).

included her review of his book *The Mountains of California*. Earle noted Muir's 'intent love for all...aspects of nature', and added that, 'the trees are his brother; he knows their forms, their voices, the different sounds of their rustling leaves.'¹¹ While Muir's contemporaries demonstrated an awareness of his attention to natural sounds, in the visually dominated academic studies of more recent times this part of his writings has been consistently overlooked. Muir's prominent role in the promotion of American national parks and nature conservation demands that the importance he gave to listening to natural sounds now be recognised.

Muir's multi-sensory nature experience

For Muir, listening was crucial to his understanding and enjoyment of the natural environment. The importance he placed on listening, recording and describing natural sounds highlighted the prominence he accorded the aural sense. In describing natural spaces, he ranked the aural sense alongside the visual. This is demonstrated through the countless references he made to natural sounds. Muir considered nature a multi-sensory experience but relied predominantly on sound, and sight, to describe the places he experienced.

Unsurprisingly, Muir commented widely on nature's visual scenes; he remarked that California's Sierra Nevada range appeared, in celebration of the

¹¹ University of the Pacific Special Collections (UPSC), Holt–Atherton Special Collection, Alice Morse Earle to John Muir, 1909, < <http://www.pacific.edu/University-Libraries/Find/Holt-Atherton-Special-Collections/John-Muir-Papers.html>>.

mountains' luminous golden appearance, like a 'range of light.'¹² On his expeditions he foraged for food and on occasion noted the flavours he tasted. Muir was particularly fond of sugar pine; their 'candy-like kernels' he described as similar to 'clusters of resin beads' that tasted better to him than 'maple syrup.'¹³ He also relished the natural aromas he smelt. He found the aroma of sugar pine particularly appealing and claimed that the lumberman who felled the wooden giants must have been 'sweetly perfumed' on account of their work.¹⁴ At Greely Mill in the Sierra Nevada Muir came across freshly sawn logs and declared their opulent aroma 'delicious.'¹⁵ He remarked that the mountain air itself smelt as if it was 'distinctly fragrant with balsam and resin and mint.'¹⁶ Muir even built his 'wilderness bed' out of fir plumes as they omitted a 'delicious fragrance.' He fashioned his pillow from a 'variety of sweet flowers' as they provided an aromatic delight.¹⁷

Though Muir enjoyed nature's tastes and smells, his remarks on these senses compared to the aural and visual, were minimal. While taste and smell have both been regarded as intensely personal senses, as they are physically brought into the body, they lack expressive language. As Paul Rodaway argued in *Sensual Geographies*, the study of olfaction and smellscapes has been constrained by

¹² John Muir, *The Mountains of California* in *The Eight Wilderness Discovery Books* (Seattle: Diadem, 1992), p. 295. Muir wrote, 'When I first enjoyed this superb view, one glowing April day, from the summit of the Pacheco Pass, the Central Valley, but little trampled or ploughed as yet, was one furred, rich sheet of golden composite, and the luminous wall of the mountains shone in all its glory. Then it seemed to me the Sierra should be called not the Nevada, or Snowy Range, but the Range of Light.'

¹³ *Ibid*, p. 361.

¹⁴ *Ibid*.

¹⁵ John Muir, *My First Summer in the Sierra* (La Vergne: Dodo Press, 1972), p. 10.

¹⁶ *Ibid*, p. 35.

¹⁷ *Ibid*, p. 73.

language limitations.¹⁸ Muir's writing reflected this through the terms he used to describe smells, which included 'fragrant' and 'sweet,' both of which failed to effectively describe the sensory sensations he felt. Words used to describe smells were not, 'neatly defined objects,' Rodaway argued, but rather that they failed to effectively define and convey experience.¹⁹ Alain Corbin of the Annales School claimed that the lack of expressive language to describe smell was a result of its diminished importance to humans and its association with animal behaviour. Corbin stated that, 'olfactory sensations can never provide a persistent stimulus of thought.'²⁰ Sociologists Dennis Waskul, Phillip Vannini and Janelle Wilson, argued that smells are not, 'passive records but acts that shape a sense of bodily self and ground that sense of self into experienced and re-liveable sensations.'²¹ They claimed that smells acted as triggers of memory. James McHugh, a scholar of religious history, argued that smells were effective promoters of memories. He claimed that olfaction was a primal sense and an effective power 'in terms of the ability of odours to recall memories.'²²

Despite these arguments regarding olfaction, Muir did not note smells as provoking memories in him. In this regard he was more in line with the British philosopher Edmund Burke, who wrote in his 1757 treatise on the sublime that 'smells and tastes have some share too in ideas of greatness; but it is a small one,

¹⁸ Paul Rodaway, *Sensuous Geographies* (New York: Routledge, 1994), p. 65.

¹⁹ Ibid.

²⁰ Corbin, *The Foul and the Fragrant: Odour and the Social Imagination*, p. 6.

²¹ Dennis D. Waskul, Phillip Vannini & Janelle Wilson, 'The Aromas of Recollection: Olfaction, Nostalgia, and the Shaping of the Sensuous Self', *Senses and Society*, 4-1 (March 2009), 5-22 (p. 12).

²² James McHugh, *Sandalwood and Carrion: Smell in Indian Religion and Culture* (New York: Oxford University Press, 2012), p. 13.

weak in nature...'²³ Burke added that, 'no smells or tastes can produce a grand sensation, except excessive bitters and intolerable stench.'²⁴ Muir described listening to natural sounds that reminded him of his childhood in Dunbar, Scotland. He recalled how the crashing sounds of a Yosemite thunderstorm caused him to reminisce over storms he had previously heard beat against the rocky shoreline of Dunbar.²⁵ He wrote that the 'voices' of forests seemed to him reminiscent 'of something already experienced...', yet were somehow elusive.²⁶ Muir argued that he could imagine past sounds through sights he had seen. When he observed the debris of an avalanche in a Sierra Nevada canyon he claimed he heard the avalanche 'boom again' and that he could 'read past sounds from present conditions.'²⁷

In both his personal letters and publications, Muir attempted to provide his readers with a sense of the places he visited. Through describing a location's sonic identity he was able to give an enhanced appreciation of these areas. His evocative descriptions of the sounds made by raging storms, cascading rivers and birdsong provided an enriched sense of place – nature was not just something to look at, he argued, but also a sonic event. Muir's readers enjoyed his descriptions of natural sounds at a time when the soundscape of North America was beginning to increasingly resemble that of an industrial economy. His 1878 article in *Scribner's Monthly*, 'The Humming Bird of the California Waterfalls', brought in letters of appreciation from across the nation.²⁸ Included amongst these letters was praise for

²³ Edmund Burke, *A Philosophical Inquiry Into the Origin of Our Ideas of the Sublime and Beautiful: With a Discourse Concerning Taste* (New York: Harpers and Brothers, 1844), p. 87.

²⁴ Ibid.

²⁵ Wolfe, *John of the Mountains*, pp. 7-8.

²⁶ Ibid, p. 219.

²⁷ Ibid, p. 226.

²⁸ Donald Culross Peattie, *A Gathering of Birds* (San Antonio: Trinity University Press, 2003).

Muir's compelling depictions of the natural soundscape. John McLandburgh wrote to Muir of the great pleasure he and his family had of reading of the sounds of nature in an increasingly noisy United States. McLandburgh claimed that 'in this busy material age we are often blind and deaf to the sights and sounds of nature.'²⁹ S. M. Brown wrote to Muir in 1910, and jealously stated 'what a perennial joy it must be to have lived amid the sights and sounds, and silences that have been your environment for so many years.'³⁰ Muir's publications promoted natural sounds as a specific park resource and a point of difference between wilderness and urban spaces. The importance of the parks as a repository of natural sounds was not lost on his readers.

The sublime sounds of nature

Listening to natural sounds was an emotional and deeply personal experience for Muir through which he felt more intimately connected to nature. Muir told his readers that the national parks possessed sonic qualities that provided a sense of being in the presence of a higher spiritual being. Leave behind the human-made sounds of the church organ and composed hymns that gave praise, he argued, and go into the parks to hear natural hymns and the tones of winds that carried the word of God. Yosemite and other natural spaces possessed, Muir argued, loud sounds and periods of quiet that induced the sublime.

²⁹ UPSC, Holt–Atherton SC, John McLandburgh to John Muir, 11 February 1878.

³⁰ UPSC, Holt–Atherton SC, S. M. Brown to John Muir, 17 February 1910.

Muir's remarks upon his perceptions of natural sounds were reflective of the philosopher Edmund Burke, and more than likely influenced by him. Burke argued that the sublime occurred when the 'mind is so entirely filled with its subject, that it cannot entertain any other,' and that 'astonishment...is the effect of the sublime in its highest degrees,' while associated effects are, 'admiration, reverence and respect.'³¹ Burke wrote that Nature's vast dimensions, which encompassed great heights and depths, induced the sublime. Yosemite, Grand Canyon, Rocky Mountain, and other areas established as national parks in the late-nineteenth and early-twentieth centuries, displayed these physical attributes. As the historian Alfred Runte argued, monumental landscapes were a recurring theme in the period of the establishment of American national parks, as there was a desire to appreciate the 'spectacular in nature.'³² These parks also exhibited distinct and impressive sonic qualities, which at times dominated the mind.

As Burke argued, loud sounds that captivated and astonished the mind induced the sublime;

'The eye is not the only organ of sensation by which a sublime passion may be produced. Sounds have a great power in these as in most other passions...Excessive loudness alone is sufficient to overpower the soul, to suspend its action, and to fill it with terror. The noise of vast cataracts, raging storms, thunder, or artillery, awakes a great and awful sensation in the mind...'³³

³¹ Burke, *A Philosophical Inquiry into the Origin of Our Ideas of the Sublime and Beautiful: With a Discourse Concerning Taste*, p. 82.

³² Runte, *National Parks: The American Experience*.

³³ Burke, *A Philosophical Inquiry Into the Origin of Our Ideas of the Sublime and Beautiful: With a Discourse Concerning Taste*, p. 104.

Burke argued that loud sounds like thunder provoked the sublime and added that sudden and unexpected sounds, which gave a 'perception of danger', roused the attention of the listener.³⁴ Burke also claimed that those sounds that exhibited a 'low tremulous, intermitting sound' induced the sublime.³⁵

Archibald Alison, the Episcopalian minister and essayist, expanded on Burke's theories in his 1790 work, *Essays on the Nature and Principles of Taste*. Alison argued that thunder and cascading water, 'the howling of a tempest' and other loud sounds, provoked the sublime and that of all these thunder was 'the most sublime.'³⁶ Alison claimed that particular environmental conditions were required for sounds to induce sublime thoughts. He argued that 'the nature of the Emotion we experience, corresponds, not to the nature of the Sound itself, but to the nature of the Association with it.'³⁷ Alison claimed that there needed to be certain aural and visual elements in place for a sublime experience to occur. Loud and sudden sounds that were not experienced within a visually sublime landscape, for example the sound of factory machinery, were according to Alison insufficient in inducing the sublime. But within Yosemite Valley both the visual and aural manifestation of the sublime were present. The loud sounds generated through storms, waterfalls and rivers combined with the dramatic and imposing dimensions of the landscape and produced a sublime experience. Even periods of quiet could invoke the sublime, Alison argued, and that, 'the deep silence of a summer's noon, (had) something

³⁴ Ibid.

³⁵ Ibid, p. 106.

³⁶ Archibald Alison, *Essays on the Nature and Principles of Taste; Volume One* (Edinburgh: George Ramsey and Company, 1815), pp. 196-197.

³⁷ Ibid, p. 198.

strikingly sublime in this inconsiderable sound.³⁸ Quiet was a feature of Yosemite's soundscape as well, when the weather was favourable and the Valley's creeks, rivers and ephemeral waterfalls ran quietly.³⁹

Throughout his writing, Muir impressed on his readers that natural sounds were not merely only pleasant to hear, but that they were also sublime. He described how he was emotionally moved by natural sounds and used these aural experiences to stress that natural areas were more than just visually aesthetic wonderlands that pleased the eye.⁴⁰ Muir made numerous remarks on the sublime sounds of nature in his letters, journals and books that reflected the writings of both Burke and Alison.

In particular Muir heard storms as a manifestation of the sublime. During his 1880 Alaskan expedition, Muir was caught in a storm and described the event as a sublime experience. He claimed that 'Never is the Creator more visible than in storms – a sublime vision,' and how the 'gloomy slow-crawling clouds made the sounds of the thrashing winds fearfully solemn.'⁴¹ Muir repeatedly wrote about the thunderstorms he witnessed, and his account of a Yosemite storm demonstrated how immense natural sounds profoundly affected him. He recalled how he listened to the 'sublime thunder reverberating among the mountains and cañons, - some strokes near, crashing, ringing in the tense crisp air with startling keenness.'⁴² This

³⁸ Ibid, pp. 202-203.

³⁹ Alison also argued wrote that animal sounds were capable of inducing the sublime. He wrote that bears, wolves and eagles were, 'remarkable for their strength', and invoked the sublime, 'from the qualities of which they are expressive.' Ibid, p. 221.

⁴⁰ See for example, Christine Oravec, 'John Muir, Yosemite, and the Sublime Response: A Study in the Rhetoric of Preservation', *Quarterly Journal of Speech*, 67.3 (1981), 245-258.

⁴¹ Wolfe, *John of the Mountains*, pp. 278-279.

⁴² Muir, *My First Summer in the Sierra*, p. 73.

was one of three tempests he described over four days in July 1869, and in each account he noted their powerful and dominating sonic qualities. He described these thunderstorms as, 'metallic, ringing, clashing, clanging notes'; 'thunder gloriously impressive, keen, crashing, intensely concentrated, speaking with tremendous energy it would seem that an entire mountain is being shattered'; 'clear ringing strokes are succeeded by deep low tones'; 'then another and another peal, or rather crashing, splintering stroke, follows in quick succession.'⁴³ Muir told his readers that in the nation's national parks they could, like he had, experience sounds that dominated the mind and revealed nature's awesome power.

In accordance with Burke's writings, Muir thought that Yosemite's waterfalls similarly possessed sublime qualities. He described Tamarack Creek Falls, near Yosemite Valley, as 'low booming, {...} roaring', and noted how the waterfall in the, 'deep still night seen white in the darkness, and its multitude of voices sound{ed} still more impressively sublime.'⁴⁴ Muir commented on how the 'tones of the mighty congregation of waters', which were a keynote sound of Yosemite Valley, made the 'sublime rocks' tremble.⁴⁵ Muir noted Yosemite's soundscape of cascading water and storms that reverberated around the walls of the Valley, and how these sounds filled him with thoughts of nature's awesome sonic power. Unlike Yosemite's monumental landscape, both storms and waterfalls were ephemeral events and this heightened Muir's excitement. He actively sought to experience these sonic events whenever he could, by building his cabin at the base of Yosemite Falls and heading out into storms as they ranged through the Valley.

⁴³ Ibid, pp. 73-75.

⁴⁴ Ibid, p. 64.

⁴⁵ Ibid, p. 114.

Alongside his enjoyment of these immense natural sonic events, Muir enjoyed the quiet moments he experienced on his travels and how these affected him. Though a different sublime experience to loud sounds, areas that exhibited extensive and profound quiet also concentrated his mind. Like the deep roaring sounds of waterfalls and tempests, the sonic qualities of quiet spaces excluded all other thoughts from his mind. Through this his readers gained a sense of nature's quietude at a time when its urban spaces were experiencing the noise of industrialisation. He stressed that natural spaces were locations where peace, tranquillity and the sublime could be found. He wrote that Kaweah Basin (in what is now Sequoia National Park) was a 'sublime wilderness' where the trees were 'hushed and thoughtful' and that he 'walked softly and awe-stricken' amongst them.⁴⁶ Muir scribbled in his journal that when he was alone at night in Yelm Prairie, Washington, that 'in the depths of the woods {...} the stillness is at once awful and sublime.'⁴⁷ In these extensively quiet places, Muir found that he was captivated by the experience of being in nature, the lack of noise made it seem as if there was no possible disturbance that could remove him mentally from these places.

It was, Muir wrote, not in the quiet forests that the sounds of the sublime were most prevalent, but on the 'tranquil plains.'⁴⁸ He claimed that there he found 'perfect quietude' and 'freedom from every curable care' where, 'jubilant winds and waters sound in grand harmonious symphonies.'⁴⁹ For Muir it was the absence of dominant sounds and the stillness of the air, which commanded his attention. He

⁴⁶ Muir, *Our National Parks*, p. 226.

⁴⁷ Wolfe, *John of the Mountains*, pp. 294-295.

⁴⁸ *Ibid*, pp. 294-295

⁴⁹ *Ibid*.

was able to focus under these conditions on all the sounds he heard around him, even the quietest. His aural perception was heightened so that he thought 'every leaf seems to speak', due to his ability to hear even the slightest rustle of sound.⁵⁰ Alison had written that even the most seemingly insignificant of sounds could, if heard under the right circumstances, elicit a sublime response. Alison claimed that the sound produced by a single drop of water when it fell from a cathedral roof down onto the stone floor, was even though a 'very insignificant and unexpressive (sic) sound', capable of being 'strikingly Sublime.'⁵¹ Nature was Muir's cathedral and the rustle of leaves represented Alison's drop of water from the cathedral roof.

Both nature's loudest and quietest sounds provided a sublime soundtrack to Muir's wilderness adventures. As Alison argued, the aural and visual senses combined in a sublime manifestation. In reading Muir's descriptions of these sounds, it is apparent that they occupied his mind to the exclusion of all other thoughts. He only noted geophonic sounds as inducing in him sublime thoughts; biophonic sounds were not a part of his sublime aural experience. Through his writings Muir conveyed these emotions to his readers as they were invited to imagine and share in the awesome sonic qualities, both loud and quiet, of the places he visited.

⁵⁰ Ibid.

⁵¹ Alison, *Essays on the Nature and Principles of Taste; Volume One*, p. 203.

Diversity of the natural soundscape

Muir wrote extensively about the vast number of different natural sounds he listened to. The natural areas he visited were, he argued, as rich and diverse aurally as they were visually. He used his publications to educate his readers on the wide range of sounds they could enjoy listening to in natural areas, and that this was a further reason to explore these places. It was evident from his writing the pleasure that Muir found in listening to nature's complete sonic spectrum. While camped at the Lower North Fork of the San Joaquin River in 1875, he wrote that the sounds he heard there were 'derived from a thousand untraceable sources' and how the 'whole air vibrates with myriad voices.'⁵² He emphasised the enjoyment of listening to natural sounds he felt by describing an experience he had at Wawona Falls in Yosemite, during the night. He described how the waterfall displayed the 'creak of myriad voices' that 'fill{ed} the night with soothing slumberous stir.'⁵³ Muir argued that it was not necessary to see the landscape to enjoy Yosemite, listening alone was an immensely pleasurable experience due to the rich diversity of sounds that could be heard.

Muir's charting of locations' sonic identities demonstrated how he used the aural sense to further understanding of places. His remarks on the sounds he heard spanned the aural spectrum from the very loudest to the quietest. Muir recalled in *My First Summer in the Sierra* how he listened intently to a grasshopper and revelled in the sounds that it made. He noted in his journal that when on the ground the

⁵² Wolfe, *John of the Mountains*, p. 219.

⁵³ *Ibid*, pp. 210-211.

insect was silent, but when diving it broke out into, 'outbursts of jolly rattling.'⁵⁴ That Muir placed such importance on the sounds made by a grasshopper, visually unimposing in the landscape of Yosemite Valley, demonstrated the importance that he placed on nature's complete sonic range. While at Wawona Falls he similarly noted the sounds made by another small creature, a mouse, and considered its 'rustling' sound sufficiently important to warrant entry into his journal.⁵⁵ Muir described a wide range of sonic events to demonstrate that national parks offered a variety of aural experiences that complemented the visual sense. Loud geophonic sounds of waterfalls and tempests sat alongside quiet biophonic sounds of mice and grasshoppers in Muir's writings.

Muir's descriptions of natural sounds provided readers with a more thorough understanding of American wildlife. He explored nature as an enthusiast, explorer and amateur naturalist. This followed on from his botanical and geological studies at the University of Wisconsin. Muir was a keen observer of nature and his study of glaciers and the formation of Yosemite Valley, 'overturned the scientific orthodoxy of his day and ushered in a fully modern view.'⁵⁶ His credentials as a naturalist were demonstrated through his association with prominent figures of the scientific community of the day who included Asa Grey, the leading American botanist of the nineteenth century and Sir Joseph Dalton Hooker, close friend of Charles Darwin and director of the Royal Botanical Gardens, Kew.⁵⁷ In his naturalist studies, Muir was

⁵⁴ Muir, *My First Summer in the Sierra*, p. 83.

⁵⁵ Wolfe, *John of the Mountains*, pp. 210-211.

⁵⁶ Jeffrey Wattles, 'John Muir as a Guide to Education in Environmental Aesthetics', *The Journal of Aesthetic Education* 47-3 (2013), 56-71 (p.61).

influenced by Alexander Von Humboldt's systematic approach, which Steven Holmes referred to as 'explore, collect, measure and connect.'⁵⁸ Muir's aural studies reflected this, he collected information about the sonic identities of the places he visited and his 'measurements' were the detailed notes he made on the sounds he heard.⁵⁹

Muir's descriptions and analysis of natural sounds were a part of his naturalist observations and studies. He evaluated natural soundscapes and provided his own theories on why specific locations sounded as they did. He argued that it was a wide variety of sources within the biophonic and geophonic spectrum that produced such an intricate and complex sonic system. Muir wrote that the soundscape was filled with a 'thousand voices' and that these sounds were 'so finely blended that they seem{ed} a part of the night itself.'⁶⁰ Sounds within a specific location, he argued, were influenced by other sounds within the biophony and geophony. Muir explained this hypothesis through his reflections on a bird he had found next to a waterfall in the Sierra Nevada in 1869 that he observed and analysed. He argued that there was a direct relationship between the bird's aural qualities and the location's sonic identity; that the presence of the waterfall, stream and even the air itself influenced the bird's vocalisations. Muir proposed that the

⁵⁷ John Sheail wrote, 'John Muir's articles, written for the popular journals of the East, won immediate recognition for their unmatched blend of scientific precision, aesthetic sensibility, and spiritual veneration.' John Sheail, *Nature's Spectacle: The World's First National Parks and Protected Places* (New York: Taylor and Francis, 2010), p. 24.

⁵⁸ Steven Holmes, *The Young John Muir*, p. 130.

⁵⁹ Laura Dassow Walls argued that Muir found in Humboldt an 'emotional inspiration and aesthetic sensibility' that gave him a 'more cosmopolitan interest in the natural world.' *The Passage to Cosmos: Alexander Von Humboldt and the Shaping of America* (Chicago: University of Chicago Press, 2009), p. 291. See in particular the chapter 'Manifest Destinies'.

⁶⁰ John Muir, *Steep Trails*, in *The Eight Wilderness Discovery Books* (Seattle: Diadem Books, 1992), p. 902.

bird's 'first lessons' had begun after its birth due to the 'thrilling and quivering of the eggs in unison with the tones of the falls.'⁶¹ He concluded that 'considering the stream songs it hears day and night. Every breath the little poet draws is part of a song.'⁶² Though appearing at first glance like a romanticised ideal of nature, Muir's account of the bird's aural qualities was his method of understanding why the bird sounded as it did.

Muir theorised that specific geophonic sounds were formed due to the particular and unique topographies of landscapes. He wrote that during a camping trip to the North Fork of the Merced River, that he thought the night-winds' sounds were due to the 'snow fountains and gardens, forests and groves' that were part of the area. He argued that the wind spoke of the 'wonders of the upper mountains', and that 'even their topography is in its tones.'⁶³ His analysis of the bird at the waterfall and of night-winds illustrated that Muir did not think natural sounds were independent of one another, but rather part of an aural ecological system.

Since Muir's writings, the study of soundscapes has evolved into a distinct field of research that has made use of sophisticated recording equipment and computer modelling. The fields of acoustic ecology, soundscape ecology and bioacoustics, have furthered understanding of the Earth's sonic environment and its ecology. Muir wrote about the natural environment prior to the emergence of these fields of research and he did not have the equipment available to modern sound recordists. Yet, Muir's writings on sound were not merely poetic words used to

⁶¹ Muir, *My First Summer in the Sierra*, p. 47.

⁶² *Ibid.*

⁶³ *Ibid*, p. 12.

romanticise nature, but rather the observations of an experienced and dedicated naturalist. The Emmy Award winning acoustic ecologist Gordon Hempton argued that Muir was in fact a 'nature sound recordist', due to his meticulous observations of the natural soundscape.⁶⁴ Muir presented his analysis through the most appropriate form available to him, the written word.

In his detailed observations of the natural soundscape, Muir made a number of valid observations. His remarks in *Steep Trails* of a 'thousand voices' that were 'finely blended,' demonstrated an understanding of how wildlife vocalised within a given location. Muir's deliberations on sonic identity were not scientifically analysed in the modern sense, but he demonstrated a keen mind and ability to comprehend soundscapes. What Muir described as a 'finely balanced' sonic environment was his understanding of how wildlife adjusted to each other's presence. His journal entry in 1875 while camped at Wawona Falls, demonstrated that he had developed an understanding of the dynamics of wildlife vocalisation. Muir wrote,

'Evening. For a while not a sound. Then the creak of myriad voices fills the night with soothing, slumberous stir – all one subdued tone. Yet above the general level of sound, like ripples on a woodland lake, a few notes are heard – tiny cricket-like musical creaks and chirps, infinitely sweet. {...} Beetles drone and boom, then drop into silence. {...} A soft, plaintive note like that of a bird is heard frequently, {...} Then the owl unmistakable, and how cheery!'⁶⁵

⁶⁴ Hempton & Grossman, *One Square Inch of Silence: One Man's Quest to Preserve Quiet*, p. 244.

⁶⁵ Wolfe, *John of the Mountains*, p. 210.

From this quote it is apparent that Muir had an understanding of the different frequencies that wildlife vocalised at and that animals produced sounds at specific intervals in order to be heard. His analysis of the soundscape bore a strong similarity to what the acoustic ecologist Bernie Krause termed in 1987 'Acoustic Niche Adoption'. Krause argued that wildlife adjusted their vocalisations so that interference with other sounds was minimised.⁶⁶

Muir's description of the bird at the waterfall was a further part of his naturalist studies. He noted the bird's physical structure, movement, colour, flight pattern and the different sounds it made. His observation quoted below demonstrated that just how detailed his nature studies were. Muir did not just note the bird's physical features, its size and movements, but also its vocalisations.

'It is not a water bird in structure, though it gets its living in the water, and never leaves the streams. It is not web-footed, yet it dives fearlessly into deep swirling rapids, evidently to feed at the bottom, using its wings to swim under water just as ducks and loons do. Sometimes it wades about in shallow places, thrusting its head under from time to time in a jerking, nodding, frisky way that is sure to attract attention. It is about the size of a robin, has short crisp wings for flying either in water or air, and a tail of moderate size slanted upward, giving it, with its nodding, bobbing manners, a wrenish (sic) look. Its colour is plain bluish ash, with a tinge of brown on the head and shoulders. It flies from fall to fall, rapid to rapid, with a solid whir of wing beats like those of a quail, follows the winding of the stream, and usually alights on some rock jutting up out of the current, or on some stranded snag,

⁶⁶ Bernie Krause, 'Bio-Acoustics: Habitat, Ambience and Ecological Balance', *Whole Earth Review*, 57 (1987), 14-18 (p.15).

or rarely on the dry limb of an overhanging tree, perching like regular tree birds when it suits its convenience. It has the oddest, daintiest mincing manners imaginable; and the little fellow can sing too, a sweet, thrushy (sic), fluty song, rather low, not the least boisterous, and much less keen and accentuated than from its vigorous briskness one would be led to look for.’⁶⁷

Muir undertook field studies such as this and made informed analytical conclusions from his observations. His argument that a location’s sonic identity influenced a bird’s vocalisations was based on his reasoned observations and evaluations. Muir’s analysis resembled what came to be known as Acoustic Adaption Hypothesis (AAH), which argued that birds’ vocalisations differ in accordance to where they live. Henrik Brumm, specialist in communication and social behaviour at the Max Planck Institute for Ornithology, and Marc Naguib, animal behaviour researcher at Wageningen University, argued that ‘birds in certain habitats use songs of similar structure,’ and that, ‘birds in areas with low frequency noise {used} particularly high-pitched vocalisations.’⁶⁸ Brumm and Naguib argued that birds’ vocalisations were, ‘shaped by selection to stand out.’⁶⁹ The theory of AAH that ‘song features get adapted to the sound transmission characteristics of the environment’ was essentially the same argument that Muir made.⁷⁰

Muir’s theory that an area’s topography and vegetation impacted a location’s sonic identity was a further valid argument that he made. Professor of Ecology Almo Farina noted in his work, *Soundscape Ecology: Principles, Patterns, Methods and*

⁶⁷ Muir, *My First Summer in the Sierra*, pp. 46-47.

⁶⁸ Henrik Brumm & Marc Naguib, ‘Environmental Acoustics and the Evolution of Bird Song’, in *Advances in the Study of Behavior*, ed. by Marc Naguib (London: Academic Press, 2009), p. 1.

⁶⁹ *Ibid*, p. 7.

⁷⁰ *Ibid*, p. 3.

Applications, that sounds were prone to modification by, ‘environmental constraints such as topography, vegetation cover, and natural or anthropogenic noise masking.’⁷¹ Historian Bruce Smith noted the role of topography in structuring an area’s sonic identity in his work on the soundscape of Early Modern Britain. Smith argued that landforms affected the sound of wind in specific ways, and were responsible in part for an area’s ‘acoustic identity.’⁷² Muir’s observations on the effect of topography on soundscapes, though they often appeared as romanticised writing, in fact demonstrated that he was a keen observer of the effects of topography on the soundscape. Muir’s analysis provided readers with a fuller appreciation and understanding of natural soundscapes and the national parks.

Muir and natural music

Muir celebrated the musicality and artistry of sound. The natural soundscape, Muir argued, was not a random set of sounds, but rather a complex aural arrangement. His early work as an inventor of machines demonstrated his keen interest in relationships and order. Donald Worster argued that Muir ‘was intrigued by system and relationship, by the role that each piece plays in the whole.’⁷³ Muir extended his understanding of the mechanics of systems to his analysis of natural sounds and claimed that the natural environment was a place of order, not random chaos. He argued that the natural soundscape was produced and performed like a musical composition – in the sound of winds he heard ‘sheet-music’

⁷¹ Farina, *Soundscape Ecology: Principles, Patterns, Methods and Applications*, p. 46.

⁷² Smith, *The Acoustic World of Early Modern England: Attending to the O-Factor*, p. 47.

⁷³ Worster, *A Passion for Nature, The Life of John Muir*, p. 373.

and in the tones of rivers 'written music.'⁷⁴ Systems represented to Muir organisation and purpose.

Nature provided, Muir argued, a catalogue of musical arrangements far superior to any that humans could compose or perform. There were, he believed, intricate relationships between the biophony and geophony that accounted for nature's fine musical sounds. He preferred 'natural music' to composed music and expressed this predilection in a letter to Katherine Hittell, a campaigner for the preservation of songbirds.⁷⁵ In his 1895 letter to Hittell, Muir wrote that it would be better 'to burn our pianos and violins for firewood than to kill songlarks.'⁷⁶ Muir further demonstrated his preference for natural music through remarks he made on the sonic qualities of Yosemite Falls during the winter of 1870. He claimed that the falls sounded as 'perfect and harmonious as any in heaven' and that when the water cascaded over the edge the sounds went, 'farther into the substance of being than was ever touched by man-made harmonies.'⁷⁷

Muir's enjoyment of natural music extended to the cabin he built during his first years in Yosemite. He described to his readers in *Our National Parks* his delight in listening to the Valley's musical tones as he lay in his bed. Muir led a stream from Yosemite Creek through his cabin for the purpose of 'convenience in getting water, and for the sake of music and society.'⁷⁸ He recalled how he ensured the stream

⁷⁴ Wolfe, *John of the Mountains*, p. 220.

⁷⁵ For an account of the use of bird plumage for millinery, see, Jennifer Price, *Flight Paths: Encounters with Nature in Modern America* (New York: Basic Books, 1999).

⁷⁶ John Muir Exhibit (JME), Sierra Club, John Muir to Katherine Hittell, April 1895, from 'Victorians to Meadowlarks: Two Muir Letters Rediscovered' John Muir Newsletter 1991, <http://vault.sierraclub.org/john_muir_exhibit>.

⁷⁷ Wolfe, *John of the Mountains*, p. 43.

⁷⁸ Muir, *Our National Parks*, p. 155.

had a fall just sufficient to hear it 'ripple and sing in low, sweet tones, making a delightful company.'⁷⁹ He declared that the sounds the stream made were 'delightful' and that they gave him the greatest pleasure when he rested in his cabin at night and listened to the music. His enjoyment of the natural soundtrack was enhanced by, 'a few frogs {that} came in and made merry with the stream.'⁸⁰

Muir went to great and often dangerous lengths to satiate his desire to listen to natural music. In 1874 during a winter storm he ascended a Douglas Spruce near a tributary of the Yuba River in the Sacramento Valley just so that he could listen to the wind as it passed through the tree. Muir recalled how he clung to the tree for several hours, and in this precarious position listened to the, 'vibration of the pine-needles', their 'whistling hiss' and the 'click of leaf on leaf.'⁸¹ During his 1890 Alaskan voyage he described what he considered to be the intricate relationship that made nature's musical tones. 'The sea speaks to the land all around the world,' Muir wrote, 'shouting aloud to every island or mere rock, and the land responds, speaking in a thousand voices with choirs of cascades and falls.'⁸² An Alaskan storm sounded to him like it was a 'trained choir' and that all of nature sung - 'the drenched rocks, the ice, the trees, every bush and blade of grass as well as winds and streams.'⁸³ This was a further example of how Muir thought that the natural soundscape was a performance given by a multitude of players and that the land and weather acted in unison to generate music.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Muir, *The Mountains of California*, pp. 399-400.

⁸² Wolfe, *John of the Mountains*, pp. 303-304.

⁸³ Ibid, pp. 278-279.

Due to their musical vocalisations, birds provided Muir with a pleasurable aural accompaniment to his travels. He described the individual tones made by different bird species and noted how they harmonised in song. In *Our National Parks*, Muir described an arctic bluebird as a 'delightful mountaineer, singing in a wild, cheery song'; a water ouzel as possessing a song of 'a sweet, fluty melody'; a valley quail as, 'pe-chech-ah, pe-check-a, Hoy, Hoy'; and the clarke crow (which he did not enjoy to the same extent) as a 'voice that is so harsh that to most ears the scream of the eagle will seem melodious compared with it.'⁸⁴ What was evident from these accounts was the pleasure he found in listening to birdsong. Birdsong was also a particularly personal experience for Muir. He wrote that the dusky grouse had a voice that reached, 'through the woods into one another's hearts and into ours {with} tones {that} are so perfectly human and so full of anxious affection.'⁸⁵ The song of the common robin was a reassuring and welcoming sound for Muir when he wandered alone in the wilderness. He recalled how he heard one of these birds when walking through a quiet wood and declared that 'the reassuring voice of this fellow wanderer ringing out sweet and clear as if saying "Fear not, fear not, only love is here."⁸⁶ Wander through the national parks, Muir told his readers, and you would hear delightful musical tunes. Nature was a happy and pleasing place, he assured his readers, and away from the bustle of urban life tourists would enjoy welcoming, peaceful and musical sounds.

⁸⁴ Muir, *Our National Parks*, pp. 160-180.

⁸⁵ *Ibid*, p. 164.

⁸⁶ *Ibid*, p. 177.

The sound of water in all its myriad of transformations

Muir derived great pleasure from listening to nature's aquatic sounds. In Yosemite Valley, when the rivers were swollen and the waterfalls were at full flow, the sound of cascading water was a distinct trait of the place. He attentively described the sounds of Yosemite's creeks, rivers and waterfalls as a reason to take a journey into the Sierra Nevada. He recalled in *My First Summer in the Sierra* how he heard music in the sound of rivers that flowed through the Valley. Yosemite's Tuolumne and Merced Rivers, he argued with a touch of bias, were two of the 'most songful streams in the world.'⁸⁷ The tones of running water delighted Muir as they did other travellers. R. Murray Schaffer argued that it was the sound of water that gave people the greatest pleasure. Schaffer claimed it was the 'original soundscape' and that its 'myriad transformations' were why people enjoyed it. He wrote that the rivers of the world spoke their own language and that the sound of water was being continuously reincarnated through rain, snow, waterfalls, fountains and rivers.⁸⁸ Yosemite Valley, with its waterfalls, creeks and rivers provided Muir with the sounds from a 'myriad transformations' of water.

Muir detailed the distinct and individual tones of Yosemite's waterfalls alongside their visual characteristics. He wrote that Vernal Fall possessed a deep and booming tone, while Yosemite Falls produced the 'richest, as well as the most powerful, voice of all the falls of the Valley.'⁸⁹ Muir also noted the transformation

⁸⁷ Muir, *My First Summer in the Sierra*, p. 70.

⁸⁸ Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, pp. 16-17.

⁸⁹ Muir, *The Yosemite*, pp. 623-624.

that occurred in a waterfall's sonic identity at different times of the year. He listened to Yosemite Falls in winter, and described the sound made by sections of ice that had been formed by spray frozen on the cliff alongside the falls. He associated this sound with that of a cock crowing, that awakened the Valley from its winter slumber and announced the arrival of fairer weather.⁹⁰ Muir interpreted the sound of waterfalls as intricately linked to their locations and argued that the sounds made by the falls represented their physical surroundings. Yosemite Falls had a varied sonic identity, he argued, which ranged from a sharp hiss to 'the rustle of the wind in the glossy leaves of the live-oaks and the soft, sifting hushing tones of the pines, to the loudest rush and roar of storm winds and thunder among the crags of summit peaks.'⁹¹

Muir observed that while Yosemite Falls was in full flow that its sound dominated the Valley. The 'low bass, booming, reverberating tones' of the falls, he wrote, could be 'heard under favourable conditions five or six miles away.'⁹² Muir provided an explanation for this sound and argued that it was formed by the 'dashing and exploding of heavy masses mixed with air upon two projecting ledges on the face of the cliff.'⁹³ He described these booming sounds as 'wildly intermittent', and added that 'unless influenced by the wind, most of the heavier masses shoot out from the face of the precipice, and pass the ledge upon which at other times they are exploded.'⁹⁴ These detailed explanations for the sounds emitted by Yosemite Falls demonstrated how actively Muir listened to the Valley's

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Ibid.

⁹³ Ibid, p. 624.

⁹⁴ Ibid.

soundscape. Muir's observation that he could hear Yosemite Falls at a distance of up to six miles away, but only under favourable wind conditions, established that he paid attention to the waterfall's sounds when in he was in other parts of the Valley; and that he was aware of conditions that affected his ability to hear the falls. Muir conveyed the distinct aquatic soundscape of Yosemite Valley to distant readers who through his words were able to imagine what the park sounded like. His words acted as aural images of the Valley that enticed tourists to come to the park and hear the sounds themselves.

Spiritual interpretation of the natural soundscape

Muir argued that natural sounds offered a spiritual experience. Leave the church behind, he argued, and hear the voice of God in nature. Muir claimed that he heard the praise of hymns, the ring of bells and nature as a force that called upon him to enter, explore and learn spiritual truths. Muir was brought to the United States by his father Daniel Muir, a strict religious disciplinarian and adherent of Campbellite teachings (known latter as the Disciples of Christ), who believed that he would find in the depths of Wisconsin spiritual truth.⁹⁵ John Muir had a strict upbringing on the Muir's Wisconsin farm, where he was subjected to hard work and forced to memorise the Bible by his overbearing father. Due to this harsh treatment, John Muir rejected his father's fervent religious principles and combined a mixture of

⁹⁵ Though Daniel Muir was never pleased with his son's nature wanderings, Campbell himself found an adopted home in the Appalachians, where, Donald Worster wrote, 'he liked to wander in a worshipful mood, inspired by the visual splendor of the forested ridges.' But, Worster added, 'he always carried his bible with him, for nature in his opinion was an insufficient guide to spirituality.' Worster, *A Passion for Nature, The Life of John Muir*, pp. 38-39.

evangelical Protestantism, science, romanticism and transcendentalism, which influenced how he experienced the natural environment.⁹⁶ Donald Worster argued that Muir's views on religion were decidedly liberal and his use of the term God was a 'deliberately loose and imprecise term referring to an active creative force of dwelling in, above and around nature.'⁹⁷ Though he rejected his father's beliefs, and his religious views were unorthodox for the time, John Muir remained a spiritual person, and his writings on natural sounds reflected this.⁹⁸ Daniel Muir believed he would find God on a farm in Wisconsin; his son believed that he would find God in the wilderness.

Muir claimed that nature called him into the wilderness like a siren. He explained in *My First Summer in the Sierra* how at Horseshoe Bend in the Merced Valley in 1869, he heard a 'glorious wilderness that seemed to be calling with a thousand songful voices.'⁹⁹ He added that 'Many still, small voices as well as the noon thunder, are calling, "Come Higher."¹⁰⁰ Muir described natural sounds as possessing a distinct and powerful spirituality. In a letter to Jeanne Carr, (wife of Dr Ezra Carr who was a professor to Muir while he was at the University of Wisconsin and an influence on his work as a naturalist), he described how nature enticed him to leave behind the trappings of modern life and learn divine truths in the wilderness. Muir declined the Carrs' offer to stay with them in the city and explained

⁹⁶ JME, Sierra Club, Mark R. Stoll, 'God and John Muir: A Psychological Interpretation of John Muir's Life and Religion.'

⁹⁷ Worster, *A Passion for Nature, The Life of John Muir*, p. 8.

⁹⁸ The Sierra Club John Muir Exhibit has a number of articles on his religious and spiritual beliefs. See, JME, Sierra Club, Mark R. Stoll, 'God and John Muir: A Psychological Interpretation of John Muir's Life and Religion.' Michelle L. Dwyer, 'Zen Buddhism in John Muir.' Richard F. Fleck, 'John Muir: The Celebration of Wilderness.'

⁹⁹ Muir, *My First Summer in the Sierra*, p. 7.

¹⁰⁰ *Ibid*, p. 52.

that he preferred to go to the mountains to hear the ‘winter songs and sermons preached and sung.’¹⁰¹ Through describing being called into Nature, to hear songs and sermons, Muir gave the mountains not only a spiritual resonance, but also claimed they were a place of enlightenment. He wrote that the sounds of nature called to teach him and that there in the wilderness he would undergo a great awakening.

Descriptions of natural spaces as spiritual places were common at the time Muir was writing. Within Yosemite and the American West, the landscape’s vast dimensions overwhelmed visitors and gave them an impression of being in God’s presence. Horace Greeley, founder and editor of the *New York Tribune*, described the ‘Big Trees’ of the Mariposa Grove through religious expressions. He claimed that the Giant Sequoia trees were of a ‘very substantial size when David danced before the ark, when Solomon laid the foundations of the Temple.’¹⁰² James Hutchings, an early promoter of tourism in Yosemite and Muir’s first employer in the Valley, similarly wrote of Yosemite’s ‘choral symphonies.’ Hutchings quoted Reverend Abbott’s comment that in the Valley, ‘here speaks the voice of God, and here his power is seen.’¹⁰³ Within Yosemite commentators saw an embodiment of their own belief systems within the sublime environment. As Lynn Ross-Bryant argued, national parks were places of pilgrimage that ‘enshrine(d) the values and beliefs of

¹⁰¹ Wolfe, *John of the Mountains*, pp. 135-136.

¹⁰² Horace Greeley, *An Overland Journey from New York to San Francisco in the Summer of 1859* (New York: H. H. Bancroft, 1860), p. 311.

¹⁰³ James Mason Hutchings, *In the Heart of the Sierras: The Yosemite Valley, Both Historical and Descriptive: And Scenes by the Way. Big Tree Groves. The High Sierra, with its Magnificent Scenery, Ancient and Modern Glaciers, And Other Objects of Interest; With Tables of Distances and Altitudes, Maps, Etc. Profusely Illustrated* (Oakland, Pacific Press Publishing House, 1888), pp. 15-21.
< https://archive.org/stream/inheartofsierras00hutc_0#page/n9/mode/2up > [accessed 6 January 2016].

a community.’¹⁰⁴ In the United States during Muir’s lifetime, faith in God and that he had provided Americans with a land rich in natural beauty and resources, was a widespread belief. Manifest Destiny and a belief that Euro-Americans were a superior civilised race, led Americans to believe that God had provided them with the finest of his creations. To Muir, the natural soundscape was a sonic testimony to the glory of his creator; a belief that he passed on to his readers.

As much as the soaring walls that rose from the Valley floor visually induced in Muir thoughts of being in a natural cathedral, the sounds he heard in these places made him feel as if he was in the presence of God. Muir wrote how he heard, at the appropriately named Cathedral Peak in Yosemite, the chimes of the ‘blessed cassiope, ringing her thousands of sweet-toned bells, the sweetest church music I ever enjoyed.’¹⁰⁵ On the same occasion he wrote of listening to the ‘music of {a} choir of rills’ while camped by a small pond surrounded by dwarf pines.¹⁰⁶ Muir interpreted the diverse soundscape as a combination of sounds that offered religious meaning and instruction. On a trek in Bloody Cañon, in the Sierra Nevada, he recalled that the sound of waterfalls and storms mingled to make a ‘glorious psalm of savage wilderness.’¹⁰⁷ Muir believed that in nature he was surrounded by sounds that gloried God, or more accurately a spiritual presence.¹⁰⁸

¹⁰⁴ Lynn Ross-Bryant, *Pilgrimage to the National Parks: Religion and Nature in the National Parks* (New York: Routledge, 2013), p.14.

¹⁰⁵ Muir, *My First Summer in the Sierra*, p. 151. Cassiope are shrubby plants that have a characteristic solitary bell shaped flower. Muir made the first ascent of Cathedral Peak in 1869.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid, p. 133.

¹⁰⁸ Donald Worster convincingly argued, in light of Muir’s spirituality, that Muir continued to use the ‘word “God” but what he means is not what his father or mother meant.’ Donald Worster, ‘John Muir and the Modern Passion for Nature’, *Environmental History*, 10.1 (2005), 8-19 (p.13).

Muir referred to the Sierra Nevada soundscape as the 'Song of God, sounding on forever. So pure and universal in its harmony.'¹⁰⁹ He interpreted natural sounds as the story of the creation. He wrote to Jeanne Carr that 'new songs' were sung 'in the beginning' and that as he gazed into the night sky he heard the 'far regions {...} singing the song of Creation's dawn.'¹¹⁰ Muir felt a sense of being in the presence of God through the natural sounds that he heard; they spoke to him of creation, reverence, and purity. He listened and had a personal and intimate encounter with nature, which had at its core a sense of divinity.¹¹¹ Throughout his writings he described nature as the place to visit to experience first-hand the presence of God where hymns, organ music and sermons could be heard.

Transcendentalism and natural sounds

Intellectually, Muir has been most closely connected to the New England transcendentalists Ralph Waldo Emerson and Henry David Thoreau. But, as scholars have argued, Muir's intellectual debt to these luminaries should not be exaggerated. James Brannon of the University of Wisconsin argued that though Muir 'took strongly to transcendental ideas' and 'much of his writing has a clear Emersonian ring to it,' his vision of what Transcendentalism meant was different to that of the New England philosophers.¹¹² Steven Holmes added that Emerson and Thoreau merely corroborated ideas that Muir had already worked out and that Muir's insights

¹⁰⁹ Wolfe, *John of the Mountains*, p. 92.

¹¹⁰ *Ibid*, pp. 170-171.

¹¹¹ See, Kerry Mitchell, *Spirituality and the State: Managing Nature and Experience in America's National Parks* (New York: New York University Press, 2016), pp. 13-14.

¹¹² JME, Sierra Club, James Brannon, 'Radical Transcendentalism: Emerson, Muir and the Experience of Nature', *John Muir Newsletter*, 16.1 (2006), 1-7 (p. 1).

'may have represented mainstream Protestantism as much as any Transcendentalist alternative to it.'¹¹³ By labelling Muir a Transcendentalist, Donald Worster argued, it ignored earlier scientific and cultural influences on Muir.¹¹⁴ To this list of differences can be added Muir's engagement with, and analysis of, sound.

Whereas Muir fully immersed himself in nature, seeing, tasting, smelling, and listening, Emerson saw himself as being apart from nature. As Emerson inclined to contemplate nature from afar, he relied primarily on the visual sense and disregarded the aural sense. Emerson wrote in his 1836 publication, *Nature*, that the 'eye is the best of artists,' due to 'the mutual action of its structure and of the laws of light.'¹¹⁵ As Emerson experienced nature primarily through the visual sense he wrote that 'the universe is composed of Nature and the Soul,' therefore separate and 'NOT ME.'¹¹⁶ Robert D. Richardson Jr. argued that Emerson's understanding of nature was a conception that there was an 'all-encompassing relationship that exists at all times between the mind {...} and the infinite variety of external nature.'¹¹⁷ Emerson's experience of nature was therefore less immersive, visceral and physical. By contrast, Muir, through his wilderness tramps had a deeper connection with and understanding of nature as a multi-sensorial experience.

¹¹³ Steven J. Holmes, 'John Muir, Jeanne Carr, and Ralph Waldo Emerson: A Case Study of the Varieties of Transcendentalist Influence', *Journal of Unitarian Universalist History*, XXV (1998), 1-25 (pp. 6-7).

¹¹⁴ Worster, *A Passion for Nature, The Life of John Muir*, p. 209.

¹¹⁵ Ralph Waldo Emerson, *Nature, Addresses and Lectures* (London: George Routledge and Sons, 1894), pp. 16-21.

¹¹⁶ *Ibid.* p. 10.

¹¹⁷ Robert D. Richardson Jr., 'Emerson and Nature' in *The Cambridge Companion to Ralph Waldo Emerson*, ed. by Joel Porte and Sandra Morris (Cambridge: Cambridge University Press, 1999), 97-105 (p.100), Also see, Ralph F. Bogardus, 'The Twilight of Transcendentalism: Ralph Waldo Emerson, Edward Weston, and the End of Nineteenth-Century Literary Nature', *Prospects*, 12 (1987), 347-364 and David Jacobson, 'Vision's Imperative: "Self-Reliance" and the Command to See Things As They Are', *Studies in Romanticism*, 29.4 (1990), 555-570.

Muir has been more closely connected intellectually to Thoreau than to Emerson. Roderick Fraser Nash argued that Muir's 'intellectual debt to Thoreau {...} appeared throughout his writing.'¹¹⁸ While Emerson focused on the visual sense, Thoreau's writings, like Muir's, were littered with references to sound. This was indicative of Thoreau's ideas of removing himself, to a certain extent, from urban life and immersing himself in 'nature' at Walden Pond. Thoreau's references to sound demonstrated that he considered himself to be part of nature, that his experience was not that of the all-seeing eye at a distance, but as part of a community. Thoreau's comment on a bird he observed by the door of his cabin at Walden Pond illustrated this point. He wrote 'as the sparrow had its trill, sitting on the hickory before my door, so I had my chuckle or suppressed warble which he might hear out of my nest.'¹¹⁹ Through sound, Thoreau was able to place himself in the 'natural' environment of Walden Pond.

Like Muir, Thoreau preferred natural music to organised music as he considered the latter overly cultivated, premeditated and lacking spontaneity.¹²⁰ Kenneth Rhoads argued that Thoreau heard, 'infinite music in all the sounds of nature {...} the crickets chirp, {...} sparrows twitter {...} wind in the trees {...} ice on the pond creaking and booming in mid-winter.'¹²¹ For Thoreau, who believed that wilderness provided spiritual truth, natural music was more revealing and satisfying to him than composed music. In *Walden*, Thoreau described how uncompromised

¹¹⁸ Nash, *Wilderness and the American Mind*, p. 127.

¹¹⁹ Henry David Thoreau, *Walden and Civil Disobedience* (New York: Penguin Books, 1983), p. 157.

¹²⁰ See, Jannika Bock, "'There is Music in Every Sound": Thoreau's Modernist Understanding of Music', *Current Objectives of Postgraduate American Studies*, 7 (2006), and Kenneth W. Rhoads, 'Thoreau: The Ear and the Music', *American Literature: A Journal of Literary History, Criticism, and Bibliography*, 46 (1974), 313-328 (pp. 315-316). Rhoads' wrote, Thoreau had an 'antipathy for organized or formal music.'

¹²¹ Rhoads, 'Thoreau: The Ear and the Music', (p. 316).

natural sound heightened his sense of solitude. On one occasion he described sitting in 'undisturbed solitude and stillness, while the birds sang around or flitted noiseless through the house.'¹²² Natural sounds provided Thoreau with a sonic barrier to life in Concord, but when he heard the sounds made by humans beyond Walden Pond he was brought back to thoughts of urban life. He described how 'the noise of some traveller's wagon on the distant highway' reminded him 'of the lapse of time' and reminded him that the civilisation he had tried to remove himself from was just a short distance away.¹²³

Muir invariably remarked with complete disdain when he heard human sounds in natural areas. By comparison Thoreau was far less critical and at times welcomed the human-made sounds he heard while sequestered away at Walden Pond. Michael West wrote that Thoreau's comments in *Walden* on human sounds were more numerous than his references to natural sounds and that what he had to say was 'by no means unfavourable.'¹²⁴ At Walden Pond, Thoreau's aural solitude was distinctly temporal due to the close proximity of Concord, and the Fitchburg Railroad, which he wrote was a hundred rods, a mere 0.3 miles, to the south of his cabin. Consequently, the sonic imprint of an emerging industrial soundscape repeatedly violated Thoreau's solitude. Thoreau seamlessly moved between commenting on natural sounds to remarking on human-made sounds. He described listening to birds from the window of his cabin, to casually noting that 'for the last half hour {he had heard} the rattle of railroad cars, now dying away and then reviving

¹²² Thoreau, *Walden and Civil Disobedience*, p. 157.

¹²³ Ibid.

¹²⁴ Michael West, *Transcendental Wordplay: America's Romantic Pundsters and the Search for the Language of Nature* (Athens: Ohio University Press, 2000), pp. 423-424.

like the beat of a partridge, conveying travellers from Boston to the country.’¹²⁵

Thoreau wrote that year round ‘the whistle of the locomotive’ penetrated into the woods, ‘sounding like the scream of a hawk.’¹²⁶ The reference to the scream of a hawk inferred a sense of disruption to his solitude at the pond. However, Thoreau commented later on that he felt ‘refreshed and expanded when the freight train rattles past me’, implying that he was not completely adverse to its intrusion.¹²⁷

Thoreau referred to the sound of bells that reached him at Walden Pond. He claimed this human-made sound did not disturb him and that the ‘faint, sweet, and, as it were, natural melody, {was} worth importing into the wilderness.’¹²⁸ Thoreau wrote that the bells’ tones were adapted and moulded by nature. Their tones came to him, he wrote, ‘as a melody which the air had strained, and which had conversed with every leaf and needle of the wood, that portion of the sound which the elements had taken up and modulated and echoed from vale to vale.’¹²⁹ Thoreau argued that their sound was ‘partly the voice of the wood.’¹³⁰ It was as if for Thoreau, these human-made sounds actually belonged in the soundscape, that they complimented and enhanced natural sounds. His close proximity to human-made sounds seemingly made them more acceptable to him. The railroad and the church bell were his aural link to the world outside Walden Pond - through sound he was connected to the community that he claimed to have tried to remove himself from.

¹²⁵ Thoreau, *Walden and Civil Disobedience*, pp. 157-160.

¹²⁶ Ibid.

¹²⁷ Ibid.

¹²⁸ Ibid.

¹²⁹ Ibid, p. 169.

¹³⁰ Ibid.

Muir and the anthropophony

Muir's thoughts on the anthropophony were in contrast to Thoreau's. Muir considered the presence of human sounds in natural areas a distraction to his solitude. His descriptions of urban noise demonstrated that he did not enjoy the sonic qualities of towns, cities and urban life generally. Born in 1838, Muir witnessed the changes that industrialisation and the growth of cities wrought on the American soundscape as factory noise overtook the sound of the plough. Muir wrote that his formative years in and around Dunbar, Scotland, introduced him to the pleasure of listening to natural sounds. Muir claimed that as a child he listened on a broad meadow near the town to the sound of skylarks, and enjoyed 'their marvellous singing.'¹³¹ In the countryside around Dunbar, Muir wrote, the 'wildness was ever sounding in our ears.'¹³²

Transported by his father to rural Wisconsin, the soundscape that Muir heard was still predominantly natural. The family holding, Fountain Lake Farm, offered a diverse landscape of 'oak woods, prairie, wetland and glacial lake waters'¹³³ Muir recalled how he listened at the farm to the 'love-song' of the common jacksnipe, and the 'musical tones' of frogs.¹³⁴ It was not until he travelled to the University of Wisconsin, Madison, that he had prolonged exposure to the soundscape of an industrial and urban United States. Muir found Madison's urban soundscape both alien and oppressive. In letters that he wrote to his family, Muir expressed his displeasure and unease of being surrounded by the noise of modern American urban

¹³¹ John Muir, *The Story of My Boyhood and Youth* (Madison: University of Madison Press, 1965), p.39.

¹³² *Ibid*, p. 41.

¹³³ JME, Sierra Club, David Leshuk, 'John Muir's Wisconsin Days.'

¹³⁴ *Ibid*, pp. 60-61.

life. He described how he was subjected to the noise of hundreds of roosters, and 'locomotive whistles so loud that you would almost think the end of their whistles were in your ears.'¹³⁵ Muir described a city soundscape of barnyard animals, factories and railroads, which combined in a sonic manifestation of an emerging industrial nation as wage labour took over from that of the artisan, journeyman and farmer. For Muir, city noises represented being controlled, and the sound of the wilderness represented freedom.

Muir's loathing of urban sounds that was born in Madison continued throughout his life. During his visit to Havana, Cuba, in 1867, he listened to the Sunday afternoon bullfight with utter contempt. He declared that the noise of the bullfight was 'bellowing' and that the city was 'a babel of strange sounds.'¹³⁶ The noise of Havana at night was no more agreeable to him. He wrote that the ring of bells, blasts of cannons, and shouts of sentinels were the most 'incessant sharp-angled mass of noise' he was ever 'doomed to hear.' It was not until he was cocooned in his bunk on the boat in Havana harbour, where he listened to the 'wavelets tinkling outside close to {his} ear' that he earned some respite from the din.¹³⁷ Muir considered nature and human-made noise incompatible. In a letter to Jeanne Carr he described a walk he took in Chicago and how he expected to find moss growing there, but found none. He wrote that on reflection this was unsurprising as he thought 'the terrible noise is too great for the hardiest of

¹³⁵ UPSC, Holt–Atherton SC, John Muir to Mary Muir, Anna Muir & Joanna, May 1861.

¹³⁶ John Muir, *A Thousand Mile Walk to the Gulf* in *The Eight Wilderness Discovery Books* (Seattle: Diadem Books, 1992), pp. 163-164.

¹³⁷ *Ibid*, p. 165.

them.¹³⁸ As much as he found the din of the city unsuitable for the growing of moss, he also found it unsuitable for his own growth and development. Muir wanted to listen to nature and enjoy its tranquillity, as much as he wanted to see nature.

As industrialisation expanded in the United States during the nineteenth century, some heard mechanised noise as progressive. Muir was a talented machine maker who experienced working in factories and had first-hand knowledge of industrial noise.¹³⁹ Though Muir did not provide a detailed account of his aural experiences in factories, a letter he sent to Duncan Sterling demonstrated that it was not something he enjoyed. He wrote to Sterling in 1870 and recalled the ‘noisy atmosphere’ they had worked in and how they discussed, not with any pleasure, which of the machines generated the ‘deeper din.’¹⁴⁰ Muir’s letter was striking in its comparison between the din of industrialisation and the natural sounds of Yosemite. He invited Sterling to come and visit Yosemite, where he wrote the waterfall’s ‘song is ever ascending,’ and could be enjoyed ‘night and day.’¹⁴¹ Muir’s letter to Jeanne Carr, written while he worked in the Trout’s Ontario factory, provided a further example of his concerns about the spread of industrial noise. The ‘din of machines,’ Muir argued, dominated the soundscape of the ‘outer noisy world.’¹⁴² Muir was acutely aware of the sonic encroachment of industrial noise on the American soundscape and emphatically stressed his displeasure.

¹³⁸ UPSC, Holt–Atherton SC, John Muir to Jeanne Carr, 30 August 1867, Indianapolis.

¹³⁹ Along with working for the Trout family in Ontario, Muir also worked for Osgood, Smith and Co. in Indianapolis. See Worster, *A Passion for Nature, The Life of John Muir*, pp. 106-107.

¹⁴⁰ UPSC, Holt–Atherton SC, John Muir to Duncan Sterling, 30 January 1870.

¹⁴¹ *Ibid.*

¹⁴² JME, Sierra Club, John Muir to Jeanne Carr, 13 September 1866.

Muir distinguished between the soundscape of urban and natural environments and argued that human-made noise was out of place in natural areas. He considered the clearing of forests in the same tones as Thomas Cole had, as the sound of destruction. Muir recalled the din he heard that came from Hyde's Mill, near the South Fork of Kings River, as 'booming and moaning like a bad ghost'. These sounds, Muir wrote, spoke of the destruction of 'many a fine tree.'¹⁴³ Muir was aware of his own complicity in the degradation of Yosemite's soundscape and expressed guilt over the noise his axe made. Writing in 1873, he compared the song of a water ouzel with his 'noisy axe' and that he believed the bird must not have cared for it.¹⁴⁴ In a letter to his brother, Daniel Muir Jr., in December 1869, he described the impact of his sawmill on the Valley's soundscape. Muir considered it 'most sacrilegious to mar the harmonies of these divine waterfalls with the screeching of a mill – to set the white waters of Yosemite to work where it is tranquil in its passage from the sky.'¹⁴⁵ While the sawmill did not cause the destruction of any tress, as Muir only used those that had fallen in storms, the noise of the saw disturbed the natural soundscape of the Valley.

Muir died on Christmas Eve in December 1914, a time when Yosemite received a mere 15,000 visitors per year.¹⁴⁶ But he was already concerned by the intrusion of human-made noise into natural areas. Automobiles had been used in Yosemite as early as 1900 (the first automobile permit was not actually issued until

¹⁴³ Wolfe, *John of the Mountains*, p. 229.

¹⁴⁴ *Ibid*, p. 118.

¹⁴⁵ UPSC, Holt–Atherton SC, John Muir to Daniel Muir Jr., 5 December 1869.

¹⁴⁶ Visitation to Yosemite in 1906 was, 5,414, 1914, 5,145, in 2016 5,028,868. See National Park Service [online]. 'National Park Service Visitor Use Statistics'. [cited 20 April 2017]. <<https://irma.nps.gov/Stats/Reports/Park/YOSE>>.

1913), but numbers were small and subject to strict regulation.¹⁴⁷ The sonic encroachment from aircraft, that has affected all of the national park system, was by the time of Muir's death, a distant and unrecognised threat. The first aircraft did not fly over the Grand Canyon until 1919, five years after his passing. Muir disliked noise and believed that national parks should act as a bulwark to the noisy advance of industrialisation. The natural soundscape, Muir argued, was necessary for the health of the nation. During an expedition to Mount Glacier in Alaska in 1890, Muir remarked that in the silence of the wilderness, resting by a waterfall with the tones of rills on the ice that, 'the weary can gain a heart-bath in perfect peace.'¹⁴⁸ Natural quiet, he argued, was needed for both the physical and mental restitution of American health.

Muir wrote, while on his ranch in the Alhambra Valley, California, in 1895, that Yosemite offered a 'refuge from the roar and dust and weary, nervous, wasting work of the lowlands.'¹⁴⁹ Yosemite was, Muir declared, a place of 'soothing peace,' and a 'poor man's refuge,' as 'few are altogether blind and death to the sweet looks and voices of nature.'¹⁵⁰ The tranquillity of nature, Muir argued, was for the benefit of all and was necessary for the health and wellbeing of American society. Muir believed that time spent in nature was a break from the sonic controls of modern life. During his 1890 voyage in Alaska, Muir wrote how clocks struck without being heard.¹⁵¹ The striking of clocks symbolised adherence to time and control, compared to the natural soundscape that allowed the listener to abandon thoughts of their

¹⁴⁷ Yosemite National Park, 'Automobile Regulations of August 5, 1913.'

¹⁴⁸ Wolfe, *John of the Mountains*, pp. 319-320.

¹⁴⁹ *Ibid*, pp. 351-352.

¹⁵⁰ *Ibid*.

¹⁵¹ *Ibid*, pp. 303-304.

normal everyday lives. Muir held that listening to natural sounds was an important part of the park experience, and an antidote to industrial noise.

Muir argued that the national parks provided an aural quality that had ceased to exist for the United States at large and that nature needed to retain a soundscape as pristine as its scenery. Muir believed that human noise was disruptive to this solitude. While hiking in Sequoia and General Grant National Parks, he wrote of walking in wonder only to be disturbed by human noise. When he stumbled across a man leading a horse Muir recalled that the ‘dull bumping, thumping sounds...seemed sadly out of place.’¹⁵² He described in *My First Summer in the Sierra* how he heard a group of men trying to coax a herd of sheep across a stream and the disturbance of the men’s ‘wild shouting’ and the ‘barking of dogs.’ He decided that the noise ‘disturbed the stream itself and marred the music of its falls, to which visitors no doubt from all quarters of the globe were listening.’¹⁵³ Muir considered the sound of domesticated sheep (which he called hooped locusts) in the Sierra Nevada out of place, especially in the context of indigenous species. He wrote of the ‘continuous music’ of crickets and hylas that was so ‘fitting and full that it seemed a part of the very body of the night,’ and that the ‘only discordance came from a snoring sleeper, and the coughing sheep with dust in their throats.’¹⁵⁴

Muir instructed his readers on how to experience the parks through the aural sense. Tourists needed, he stated, to remain quiet so that they would enjoy natural sounds and respect nature as a spiritual space. Muir argued that true ‘nature lovers’

¹⁵² Muir, *Our National Parks*, pp. 226-228. However, Muir who loved conversation, added that it was ‘pleasant to meet one of our own species after solitary rambles.’

¹⁵³ Muir, *My First Summer in the Sierra*, pp. 66-67.

¹⁵⁴ *Ibid*, p. 5.

enter the wilderness as if entering a holy space - 'devout {and in} silence' and listen 'with love.'¹⁵⁵ He declared that it was necessary to be fully immersed in nature to appreciate its aural qualities. The wilderness enthusiast, Muir wrote, rapidly 'yields to the spell of the falling, singing river and listens....' Poets, he stated, listen to the river as if it were a poet itself and that, 'he who enters will hear a music which will never cease to vibrate in his life.'¹⁵⁶ As Muir wandered through the Mariposa Grove of trees in Yosemite he met a hermit who he thought had, due to his situation, been able to understand the natural world. Muir wrote that the hermit was 'finely alive to the silent influences of the forest pets, the mountain quail and the squirrels.'¹⁵⁷

Muir was concerned that those travellers who did not enter the national parks in silent reverence would prove unable to appreciate them fully. Writing at a time of rising interest in the parks, when vacations and outdoor recreation were no longer solely for society's elites, Muir's popular publications read as guidebooks for travellers. Muir told his readers that to experience nature to the fullest extent, they needed to listen. In his 1901 publication, *Our National Parks*, Muir recounted those travellers who had complained that there was a 'want of life,' in the forests of the Sierra Nevada. Muir paraphrased the tourists, and wrote, "'the trees," they say, "are fine, but the empty stillness is deadly; there are no animals to be seen, no birds. We have not heard a song in all the woods!'"¹⁵⁸ But, Muir argued, as they 'go in large parties with mules and horses, they make a great noise; they are dressed in outlandish, unnatural colours; every animal shuns them. Even the frightened pines

¹⁵⁵ Muir, *Our National Parks*, p. 160.

¹⁵⁶ Wolfe, *John of the Mountains*, pp. 166-167.

¹⁵⁷ *Ibid*, pp. 222-223.

¹⁵⁸ Muir, *Our National Parks*, p. 160.

would run away if they could.¹⁵⁹ Muir's message to his readers was that if they wanted to experience the wildlife of the Sierra Nevada, they needed to enter in silence.

Muir experienced the parks prior to mass tourism that brought travellers in by automobiles in ever-greater numbers and before air tours and motorised riverboats made the park experience for many visitors primarily a visual one. He was unable to foresee the disturbance that these forms of transportation would bring to the natural soundscape. In his book, *Steep Trails*, published posthumously in 1918, Muir wrote of visiting the Grand Canyon of the Colorado and his thoughts on the recently constructed railroad. Muir wrote that he had at first been troubled by the thought of the railroad, but that in the grandeur and immensity of the Grand Canyon, the locomotive and carriages appeared as 'mere beetles and caterpillars, and the noise they make is as little disturbing as the hooting of an owl in the lonely woods.'¹⁶⁰ This comment, on the intrusion of noise in the parks was at odds with his other comments. In particular, the Sacramento railroad to Mount Shasta, California, drew sharp criticism from Muir. Travellers who took the railroad to the mountains, Muir argued, were missing out on the full experience of nature. He argued that it was better to go by rail, than not at all, but by travelling by these means, 'many still small voices will not be heard in the noisy rush and din, suggestive of going to the sky in a chariot of fire or a whirlwind, as one is shot to the Shasta mark in a booming palace-car-cartridge...'¹⁶¹

¹⁵⁹ Ibid.

¹⁶⁰ Muir, *Steep Trails*, p. 1000.

¹⁶¹ Ibid, p. 887.

Muir died just as the guns of the Great War boomed with devastating effectiveness and Americans brought mechanised machines into the parks that transformed the soundscape into something that Muir could not have comprehended or imagined. But, his thoughts on natural sounds were consistent throughout his writing. He wrote that national parks were places where the sounds of nature could be heard undisturbed and were central to the experience of these places. From the rustle of a mouse to the roar of Yosemite Falls, he described his park experiences as fundamentally sonic events. To fully appreciate the parks, Muir argued, tourists needed to visit in silence so that they could hear natural sounds undisturbed. He called for protection of park soundscapes through telling his readers that human-made noise was out of place in quiet forest groves and mountainous areas. Muir did not write about David Curry's voice as he announced the Yosemite firefall, the commercial sounds that came from the Yosemite Village, or the sounds of entertainment that became part of the Valley's soundscape during his lifetime. These were not natural sounds, but human-made noise that to him had no place in the parks, so he excluded them. He agonised over his own contribution to the anthropophony, the noise of his sawmill that screeched rudely into the tranquillity of Yosemite Valley. What Muir would have thought of the noise of automobiles, outboard motors and scenic air tours is unknown – but it is unlikely that he would have approved. It is only logical to assume though that he would have agreed with the signs placed in the redwood grove named after him, Muir Woods Natural Monument, which simply read 'enter quietly'.

Chapter IV

Yosemite's Evolving Soundscape

'Gradually we became aware of a constant sound, and as we progressed this was discernible as a mighty roar. The noise grew deafening, and we found that it was made by the river as it cascaded over a broad ledge to from the magnificent Tuolumne Falls.' Merrie Jo Warne, 'Hiking in Tuolumne's Wonderland.' 1953.¹

'Nowhere,' John Muir wrote of Yosemite in 1901, 'will you see the majestic operations of nature more clearly revealed beside the frailest, most gentle and peaceful things. Nearly all the park is in profound solitude.'² Muir keenly promoted Yosemite as a natural wonder and highlighted the parks accessibility. 'Railroads connected with all the continent reach into the foothills' Muir stated, 'and three good carriage roads, from Big Oak Flat, Coulterville and Raymond, run into Yosemite Valley.'³ He promoted the Tioga Pass that went 'right across the park to the summit of the range by way of Lake Tenaya' and concluded that 'these roads, with many trails that radiate from Yosemite Valley, bring most of the park within reach of everybody, well or half well.'⁴ But the profound solitude of the park that Muir wrote of was under threat from these very roads and trails. The chance to visit the

¹ Merrie Jo Warne, 'Hiking in Tuolumne's Wonderland', *Yosemite Nature Notes*, XXXIII/7 (July 1954) 68-71 (p. 69).

² Muir, *Our National Parks*, p. 490.

³ Ibid.

⁴ Ibid.

wonders of Yosemite proved an irresistible draw for tourists who wanted to experience first-hand what Muir had written so eloquently of. Yosemite's isolation had preserved its landscape and soundscape from the pressures of an emergent industrialising economy – but easier access in the 1900s brought unwelcome noise, as the natural sounds issued from Yosemite's wildlife, creeks and meadows were overarched by the sounds of commerce, entertainment and mechanisation. Tourists, who wanted to visit Yosemite to escape the noise of urban American life, threatened the park's reputation as a place of quiet and solitude.

The Ahwahneechee

Humans have inhabited Yosemite Valley for several thousand years, and their cultural sounds have continuously been a part of its sonic identity. The Ahwahneechee, part of the larger cultural and linguistic group known as the Sierra Miwok, lived in Yosemite for at least six hundred years before Europeans first entered the valley in 1851. Human settlement may even have predated the Ahwahneechee. Archaeological and linguistic evidence suggested that the Valley was inhabited as early as 1100 C.E.⁵ The Ahwahneechee were certainly aware of the Valley's aural qualities and named particular sites according to their sonic identities. Prior to being named Bridal Veil Fall, the waterfall was called Pohono, a name given to signify a blast of wind or night-wind. They used the name Totokonula, an imitation of a crane's cry, for the rock formation now known as El Capitan. It was

⁵ Mark David Spence, *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks* (New York: Oxford University Press, 1999), p. 103.

called Totokonula as the tribe thought that cranes normally entered the Valley over that area.⁶ The names that were used to identify these areas demonstrate that the Ahwahneechee were consciously aware of their aural surroundings.

Throughout the Valley there were a number of Ahwahneechee villages that added the tribe's cultural sounds to the sonic identity of Yosemite. These were located at the bases of the rock formations known with the Euro-American names of Sentinel Rock, El Capitan and the Three Brothers. The largest village was situated at the base of Yosemite Falls and was built from brush, or the bark of incense cedar.⁷ These settlements produced areas of human sonic activity that were localised, persistent and demonstrative of the tribe's identity. The sounds of their celebrations, feasts and games were aural representations of their culture. The tribes made instruments from locally sourced materials; clapper sticks were used to tap out percussion and dried elderberry boughs were split and made into instruments that produced a 'hand-clap drumbeat.'⁸

The tribe conducted controlled burns on the Valley floor that altered the sound of wildlife through displacement.⁹ Research undertaken by Almo Farina demonstrated that birdsong is affected by changes in vegetation due to transmission distance, positioning and the reverberation effect. Farina concluded that 'vegetation cover can affect definitively temporal and spectral characteristics of the sonic

⁶ Josiah Dwight Whitney, *The Yosemite Guide-Book: A Description of the Yosemite Valley and the Adjacent Region of the Sierra Nevada, and of the Big Trees of California. Illustrated by Maps and Woodcuts* (Cambridge: Welch, Bigelow & Co, 1869), p. 16.

⁷ Tracey Salcedo-Chourré, *Historic Yosemite National Park: The Stories Behind One of America's Great Treasures* (Lanham: Rowman & Littlefield, 2016), p. 5.

⁸ *Ibid*, pp. 5-6.

⁹ *Ibid*, p. 176

ambience.’¹⁰ However, the sonic impact of indigenous persons was cumulatively negligible. Relatively small in numbers in relation to the size of the area and without machinery, the amount of noise produced was relatively insignificant. At certain times during the year the Ahwahneechee did not have any impact on the soundscape, as in winter when they retreated to lower levels to avoid the worst of the difficult snow conditions.¹¹

The natural soundscape of Yosemite

Despite Yosemite’s long history of human settlement, the area remained overwhelmingly natural until Euro-Americans first entered the Valley in 1851. Native American controlled burning had affected the meadows but there were no permanent structures or other significant signs of human incursion. Yosemite appealed to tourists at this time not only due to its seemingly pristine visual aesthetics but because of its soundscape as well. While the idea of monumental scenery has been accepted as a primary reason for park visitation and establishment, natural sounds similarly played an important role in the national park and nature experience.

Early tourists experienced and described a soundscape that was primarily natural due to Yosemite’s isolation. Even after Euro-Americans ‘discovered’ the Valley, it was initially a difficult place to access. Canyons, mountains and a lack of

¹⁰ Almo Farina, *Soundscape Ecology: Principles, Patterns, Methods and Applications*, pp. 50-51. See also, U.S. Department of the Interior, National Park Service, Grand Canyon National Park, *Final Environmental Impact Assessment of Effect, Fire Management Plan, Volume One* (National Park Service, June 2009) on fire management, ‘long-term impacts could result in a lasting indirect change in natural soundscape through unnatural vegetation changes...or a lasting direct change through changes in presence of noise sources in the environment.’, p. 4.

¹¹ Salcedo-Chourré, *Historic Yosemite National Park: The Stories Behind One of America’s Great Treasures*, p. 6.

local knowledge meant that even reaching the Valley was an arduous undertaking. The descent down into the Valley was demanding, perilous and time-consuming. Horace Greeley, editor of the *New York Tribune*, noted his difficulty in reaching Yosemite and argued that its isolation protected the park's solitude. Yosemite was, Greeley stated in 1860, 'miles from human settlement or cultivation,' and that this ensured an 'absolute wilderness (of) sylvan solitudes.'¹² The Valley's remoteness ensured that the park was largely immune during this period to the sounds of Euro-American advancement.

Tourists joyfully remarked on Yosemite's quietude, while others complained of the increasing decibel level in urban spaces. The rise of an industrialised society ushered in a new urban soundscape, one that rang out with the noise of commerce, bustle and the incessant din of machinery. The poet Walt Whitman wrote in 1891 of New York City's soundscape in a manner that sharply contrasted to those who wrote of Yosemite's soundscape. 'Silence?', Whitman wrote, 'what can New York-noisy, roaring, rumbling, tumbling, bustling, story, turbulent New York have to do with silence? Amid the universal clatter, the incessant din of business, the all swallowing vortex of the great money whirlpool, who has any, even distant, idea of the profound repose...of silence.'¹³ Tourists, accustomed to the noise of urban life relished the natural quiet of Yosemite. They did not solely visit Yosemite for its vistas, but for its sonic qualities as well.

¹² Charles Wesley Kyle, *Yosemite: The World's Wonderland* (San Francisco: Charles Rae, 1915), p. 18.

¹³ *Walt Whitman of the New York Aurora: Editor at Twenty-Two*, ed. by Joseph Jay Rubin & Charles H. Brown (Carrolltown: Bald Eagle Press, 1950), p. 125.

The city of San Francisco, which had rapidly grown to a population of 298,887 by 1890, was Yosemite's nearest metropolis.¹⁴ Whereas San Francisco and other American cities displayed the sonic imprint of industrialisation and rapid population growth, Yosemite exhibited the soundscape of an unaffected and seemingly pristine Eden. Visitors during these formative years of tourism depicted the Valley as a place of silence and solitude. When Dr Cora Morse gazed down into the Valley from the overlook at Glacier Point in 1896, she described the scene as 'silence, sleep, death.'¹⁵ Other writers noted a profound sense of tranquillity in the Valley. Tourist William Bruce thought that Yosemite was so quiet that even 'the very mountains are hushed in sleep.'¹⁶ When the renowned American surgeon Nicholas Senn visited Yosemite in 1904 he reported that all was 'quiet and peaceful' in the park.¹⁷ At Inspiration Point, with the Valley spread out before him, Senn declared that Yosemite appeared to be 'sleeping in the vast mountain solitude.'¹⁸ This sense of quiet, of solitude and even silence, was recognised through the original name given to Inspiration Point, 'The Stand-point of Silence.'¹⁹ As for early tourists at the Grand Canyon, silence was an element of the park experience that was readily remarked upon.

Yosemite's quietude was regarded as a valuable resource. The park's distinct soundscape, as an alternative sonic experience to urban life, was promoted as a

¹⁴ Bay Area Census [online]. 'Population by County'. [cited 5 February 2018]. Available from: <<http://www.bayareacensus.ca.gov/historical/copop18602000.htm>>. Total Bay Area population for 1890 was 547,618.

¹⁵ Cora A Morse, *Yosemite As I Saw It* (Oakland: The Outlook, 1896), p. n.p.

¹⁶ William Bruce, *The Yosemite* (New York: Charles T Dillingham, 1880), p. VI.

¹⁷ Nicholas Senn, *Our National Recreation Parks* (Chicago: W. B. Conkey Company, 1904), p. 97.

¹⁸ *Ibid*, pp. 105-106.

¹⁹ Weston Naef and Christine Hult-Lewis, *Carleton Watkins: The Complete Mammoth Photographs* (Los Angeles, Getty Publications, 2011), p. 58. 'The trail from the town of Mariposa to Yosemite Valley climbed to a point called "The Stand-point of Silence" (*Hutchings' Illustrated California Magazine*, October 1859, p. 158), later known as Inspiration Point, where Yosemite Valley could first be observed.'

reason to visit. It was not just *See America First*, but also *Hear America First*. The Southern Pacific Company advertised the park as a respite from the noise of urban areas. A promotional publication produced by the railroad company in 1910, stated that Yosemite, like a siren, beckoned visitors through its ‘call of the wild,’ where ‘shrub and flower whisper’ and ‘no sound disturbs the stillness of the air.’²⁰ Silence, or natural quiet, generated a sense of solitude – and solitude was possible only where human-made noise was absent.

Nicholas Senn wrote in 1904 that Yosemite and the Sierra Nevada mountains were places where physical and mental rest could be enjoyed. He considered these areas nature’s tonic to the demands of urban living. It was not the vistas of natural beauty that Senn cited as providing this, but rather the quiet solitude. Senn declared that in Yosemite the tourist from the ‘noisy, busy cities will find in these shady, cool forest the solitude and mental rest he seeks...’²¹ The National Park Service considered Yosemite’s natural quiet a unique selling point. The agency argued that in the park tourists could find relief from the sounds of the city. ‘Campers may pitch their tents,’ the NPS brochure announced, ‘where the song of the Merced River and the distant waterfalls bring peace and contentment, away from the confusion and noise of the city.’²² Park Ranger Ralph Anderson added that Yosemite’s soundscape offered an opportunity for mental rejuvenation. In the age of ‘jazz and discord,’ Anderson wrote, the ‘quiet beauty’ of Yosemite ‘stimulates clear thinking’ and brings

²⁰ Southern Pacific Company, *Yosemite Valley* (Chicago, Poole Bros., 1910), pp. 19 -30.

²¹ Senn, *Our National Recreation Parks*, pp. 130-131.

²² *Yosemite National Park, United States Department of the Interior* (San Francisco: Guaranty Printing & Lithograph Co, 1941).

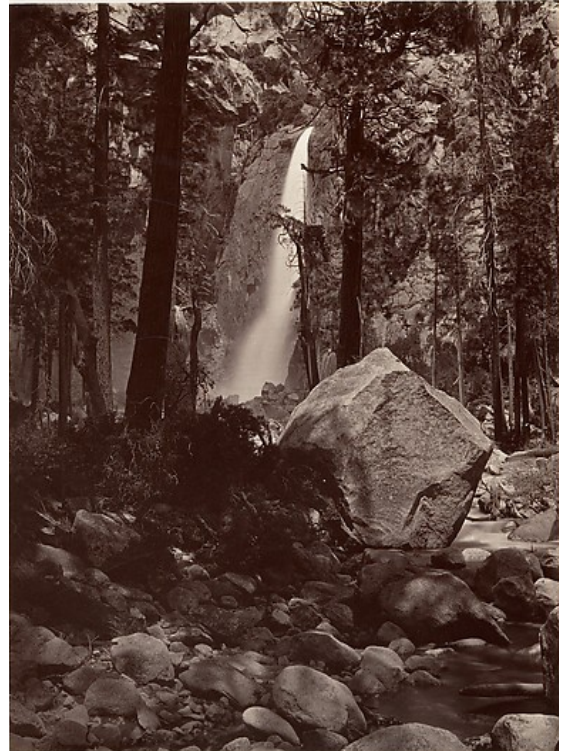
a 'new sense of values.'²³ The respite from urban living involved a full sensory experience of nature, not solely a visual experience.

Tourists readily commented on Yosemite as a quiet place. But, the rich tonal sounds of water provided a distinct sonic quality of the Valley, and this sound left a lasting impression on visitors. Yosemite's creeks, rivers and waterfalls provided an aquatic soundscape that added to the park experience. The soundscape, like that of the Grand Canyon, was not silent, as some had described it, but vibrant and sumptuously textured. The natural sounds that had delighted John Muir pleased other travellers as well. Yosemite presented a stimulating aural experience alongside that of a visual reward. The park has long been renowned for its waterfalls and rivers that featured in iconic visual representations of the place. These images linked the identity of the Valley to flowing water. Famous images like the landscape painter Thomas Moran's 1904 *Bridal Veil Fall* and the photographer Carleton Watkins' 1862 *Lower Yosemite Fall*, established water as a key visual element of the Valley.

²³ Yosemite National Park Archives (YNPA), El Portal, Yosemite National Park, Series VI: Subseries B. 501 – Publicity, 1936 -1952, Box 015: Folder 0002.501 Yosemite National Park Publicity Part 1, 1937 – 1941. Ralph Anderson, 'Yosemite has Varied Attraction' Included in a letter from Superintendent Merriam, 28 March 1939.



5. Thomas Moran, *Bridal Veil Fall*, 1904.²⁴



6. Carleton Watkins, *Lower Yosemite Fall*, 1862²⁵

Visitors to the park frequently remarked on the sounds made by flowing water, and noted the tones of creeks, rivers and waterfalls as particular favourites. When snow melted in the Sierra Nevada, water-swollen streams and creeks tracked down the valley's cliffs as waterfalls. The sounds of these falls reverberated around the Valley and were a keynote sound of the park. Tourists' aural senses were stimulated by the musical tones of flowing water - the 'soundmark' of Yosemite Valley, an aquatic soundscape. Acoustic educator Murray Schafer noted the effect of water on the imagination in his pioneering 1977 work, *Our Soundscape Environment*

²⁴ Thomas Moran, *Bridal Veil Fall*, 1904, gouache, wash and pencil on paper, Gilcrease Museum, Tulsa, OK.

²⁵ Carleton Watkins, *Lower Yosemite Fall*, 1862, albumen silver print from glass negative, The Metropolitan Museum of Art, New York, NY.

and the Tuning of the Earth. Water, Schafer claimed, 'is the fundamental of the original soundscape and the sound which above all gives us the most delight in its myriad transformation.'²⁶ The importance of water, Schafer argued, was the multiple variations of sounds that it made. It provided gentle musical tones through streams, muffled sounds after snowfalls and generated the loud and sublime sounds of waterfalls. Water, in all of its sonic transformations, was heard in Yosemite.

The musical character of the Valley's rivers enthralled many visitors. Tourist Mary Cone wrote in 1876 that the 'antics' of Yosemite's streams were 'not performed in silence, but were all set to music,' and argued the sound 'soothed while it pleased.'²⁷ The immensity of sound generated by the Valley's waterfalls consumed the imagination of tourists the most. The sublime loud sounds of Yosemite's twenty-one waterfalls awed visitors and seamlessly complimented the monumental landscape. Creeks meandered through the high country before reaching the walls of the Valley where, making their presence felt, they crashed over the edge to the valley floor in a crescendo and volley of noise. In 1908 the poet Harriet Monroe compared the sounds of the falls to martial power and proclaimed them the commanding sound in the Valley, the voice of authority. 'It is like the beauty of armies...of armies that march to victory,' she wrote, 'shouting and waving banners, and booming their haughty guns.'²⁸ Monroe described a sublime soundscape as argued by the philosopher Archibald Alison who stated that sounds

²⁶ R. Murray Schafer, *Our Soundscape Environment and the Tuning of the World*, pp. 16-17.

²⁷ Mary Cone, *Two Years in California*, (Chicago: S. C. Griggs and Co., 1876), p. 227.

²⁸ Harriet Monroe, 'The Yosemite Waters', *The North American Review*, 187 (February 1908), pp. 274-276 (p. 274).

associated with 'Ideas of great Power or Might' induced the sublime.²⁹ The aquatic sounds of Yosemite also reached out beyond the park in a KSFO radio station broadcast from Yosemite in 1942, which brought the waterfall's tones into listeners' homes.³⁰ The transmission commenced with the roar of Yosemite Falls, which the broadcaster described as a cacophony of sound reminiscent of a 'thunderous symphonic crescendo.' Unable to see the landscape of Yosemite, listeners' perception of the Valley was shaped through the sounds they heard.

A central element in the soundscape of Yosemite Valley was its topography. Encased within the walls that rose from the valley floor, the sounds of water reverberated around the valley. The landscape and soundscape were linked, with the sound of water dominating the Valley due in part to its physical structure. This meant that in the Valley the sounds of the falls were often heard before they were seen. Sounds generated within tourists an imagined space. In this case, the sound of the falls created an anticipation of what the Valley was like. A sonic image formed in the imagination of visitors prior to the visual realisation, the sense of listening overarching the sense of seeing. Tourist Caroline Churchill noted this sensation in 1884 when she described Nevada and Vernal Falls. The 'voice of this cataract', she wrote, 'reaches one's ears long before its snowy presence greets the vision.'³¹ Author and musician Robert Haven Schauffler noted the sonic dominance of water and described hearing the spring floods long before he reached Sentinel Rock. For

²⁹ Alison, *Essays on the Nature and Principles of Taste, Volume One*, p. 193.

³⁰ YNPA, El Portal, Yosemite National Park. Yosemite Old Central Files Folder 1 0004.501 Yosemite Publicity. Visitors Guide, Published by Yosemite Park and Curry Co March 26 Through April 8, 1942.

³¹ Caroline M. Churchill, *Over the Purple Hills, Sketches of Travel in California, Embracing all the Important Points Usually Visited by Tourists* (Denver, Mrs C. M. Churchill Publisher, 1884), p. 168.

Schauffler, the flooded creeks, rivers and waterfalls sounded like the ‘intermittent boom of distant artillery.’³²

Other visitors noted the dominant sound of water in Yosemite Valley. Yosemite’s aquatic tones resounded throughout the park, to the extent that they were continuously in the imagination. Whereas a vista was seen and then the viewer moved to another, the same was not true of the sounds that were issued from the Valley’s waterfalls. Edward Parkinson related in his travel book of 1894 that ‘the mighty roar of the Yosemite fell upon our ears...as we drove on the roar became like the roar of distant thunder...the roar of the falling waters is something awful, and can be heard in almost every portion of the valley.’³³ The overarching sounds of Yosemite’s waterfalls were not lost on the Valley’s premier photographer, Ansel Adams. He recalled that the falls reigned supreme during ‘April and May’ when their ‘reverberations (were) heard throughout the Valley.’³⁴ The waterfalls were also significant in that they could be heard throughout the night. When the visual spectacle of the Valley’s meadows and cliffs receded under a blanket of darkness, ‘the salvos of liquid artillery’ were ‘audible night and day in every part of the Valley.’³⁵ The sounds of the falls were a twenty-four hour performance of nature’s power.

³² Robert Haven Schauffler, *Romantic America* (New York: The Century Co., 1913), pp. 200-201.

³³ Edward S Parkinson, *Wonderland; or; Twelve Weeks In and Out of the United States. A Brief Account of a Trip Across the Continent-Short Run into Mexico-Ride to the Yosemite Valley-Steamer Voyage to Alaska, The land of Glaciers-Visit to the Great Shoshone Falls and a Stage Ride Through Yellowstone National Park* (Trenton: MacCrellish & Quigley, 1894), pp. 122-124.

³⁴ Ansel Adams, *The Four Seasons in Yosemite National Park* (Los Angeles: Times-Mirror Printing, 1938), n.p.

³⁵ Robert Haven Schauffler, *Romantic America*, p. 201.

Yosemite's aquatic soundscape, like the visual landscape, varied with the seasons. The roar of waterfalls that were heard as the snow melted in spring was reduced to a sonic slumber by late August. The Valley's rivers lost their sonic power as melt-water relented and the cascading falls were reduced to a steady flow, a murmur, and then were silenced. Occasionally summer storms unleashed rain that filled high-country creeks and intermittently made the waterfalls active again, reminding visitors of their presence despite their hibernation. However, though water may not have dominated all the year, it affected Yosemite's soundscape beyond the signature sounds of falls and rivers. In winter the upper areas of Yosemite, into the backcountry and parts of the Valley became blanketed in snow that stifled and absorbed sound to muffled tones. The pines and oaks became encrusted with snow, rendering the soundscape, as Schauffler stated, 'splendidly quiet.'³⁶ During winter, at the times when the falls flowed, water atomised as it was launched into the air and formed ice cones on rocks. When the sun shone on the rock of Yosemite Falls a new aquatic sound was born, as ice warmed and plummeted to the valley below. The aural spectacle in Yosemite was most apparent when the waterfalls were booming and the rivers cascading. Yet water affected tourists experience in numerous other ways throughout the year. It was a personal experience as well; a hiker's boot crunching through snow in the muffled quiet of the park, the drip of water as ice began to melt in the spring signalling the Valley's awakening from its winter slumber. As Schafer noted, water was heard through its myriad transformations.

³⁶ YNPA, El Portal, Folder 2734, Yosemite Winter Sports, YPCC Collection Series 8, Marketing/PR, Ephemera. Yosemite National Park - 'Badger Pass at Yosemite' (pamphlet).

In 1949 Ansel Adams took an iconic photograph of Yosemite Valley from Tunnel View during a thunderstorm. In the monochrome image the bright white dash of light of Bridalveil Fall was juxtaposed against a dark and brooding sky. The image provided a visual representation of the Valley during a storm; but sound was absent in the photograph and the thunderclaps were left to the viewers' imagination. Though storms in Yosemite Valley were visually engaging, they were experienced as much, or even more, through the aural sense than the visual. The sound of light winds blowing through the pines that generated a sense of tranquillity, relaxation and solitude, gave way to loud tempests that generated a sublime experience; the clanging storm reached throughout the Valley and became the dominant sensory gauge of place.



7. Ansel Adams, *Yosemite Valley Thunderstorm*, 1949, Philadelphia Museum of Art³⁷

³⁷ Ansel Adams, *Yosemite Valley, Thunderstorm*, 1949, Philadelphia Museum of Art.

Cora Morse recalled a storm she experienced in 1896 and how it grew in sonic intensity to a point where the Valley became dominated by its sound. She wrote that initially the storm was a mere 'whisper' in the 'glens' as the winds began to pick up. But, as the storm intensified, she wrote that the sound of thunder hit the valley walls and the 'glens (sent) back their reverberating answer.' Morse likened the storm's sound to a 'pitched battle' with the 'sharp report of thunder...carried along the valley and taken up the glen, until (there were) seven distinct echoes, one following another.'³⁸ To Morse the storm was a violent conflict, an awesome encounter with nature. She related how that the storm dominated the Valley, that there was no escape from its power or authority.

Storms in the Valley were a manifestation of Yosemite's particular soundscape. There was an added intensity to storms, which dominated the mind, due to the Valley's topography. Sounds were encased, reverberated and intensified as a result of the walls that towered above the valley floor. Etheline Pillsbury wrote in 1908 how her voice wandered over Mirror Lake and 'through the chasms and recesses of the haunted Teneiya (sic) canyon, coming ricochetting (sic) back to you again and again.'³⁹ Winter storms that rolled through the Valley generated particular sonic conditions. John Muir described the sounds of devastation that followed a snowstorm he experienced in 1871. As snows melted to flood the Valley, Muir wrote, Yosemite 'trembled, and was filled with an awful, massive, solemn, sea-like roar.'⁴⁰ The spring thaw also brought the Valley's waterfalls to life. Muir

³⁸ Cora A. Morse, *Yosemite As I Saw It* (Oakland: The Outlook, 1896), n.p.

³⁹ Etheline B. Pillsbury, *The Real Yosemite: With Hints for Those Who See, Illuminated by Camera and Pen* (Oakland: Pillsbury Picture Co., 1908), n.p.

⁴⁰ Muir, *The Yosemite*, p. 634.

recalled hearing Yosemite Falls roar again after months of silence. He wrote of being awoken by a 'sudden thunderous crash as if a rock avalanche had come to the help of the roaring waters', 'and the winds, too, were singing in wild accord, playing on every tree and rock {...} broken into a thousand cascading, roaring currents in the canyons, and low bass, drumming swirls in the hollows.'⁴¹ When they occurred, storms and their aftermath were an aural experience that occupied the mind to the exclusion of all other thoughts.

Yosemite offered a diverse soundscape. While the sound of waterfalls and storms dominated, the sounds of wildlife all added to the rich tapestry of the soundscape. Yosemite's 'biophony', 'the voice of living things,' complemented the 'geophony', 'the non-creature sounds of the earth' and added layers of complexity to the soundscape.⁴² Whilst wildlife sounds did not individually have the intensity and reach of the sounds of Yosemite's waterfalls, collectively they added layers of sonic texture. Animals and birds were the musicians of Yosemite's orchestra that helped produce the park's distinct sonic identity. The uniqueness of the natural soundscape of Yosemite was the combination of the sounds of weather, water and wildlife, expressed within the topographical features of the landscape. Tourists enjoyed the wildlife sounds as a further sonic addition to their experience. Victoria Howell noted this when she recalled her enjoyment in waking up to the sounds of Yosemite birdlife during her ten-day trip in the early 1900s. 'On rising this morning,' she wrote, 'the

⁴¹ Ibid, p. 635.

⁴² Krause, *Wild Soundscapes: Discovering the Voice of the Natural World – A Book and CD Recording*, p. XI.

air was fresh, soft and cool; (and) the birds were singing their morning greetings.’⁴³ Yosemite’s diversity and abundance of wildlife, accompanied by the geophonic sounds of the aquatic soundscape, provided a rich texture of sound that increased visitors’ enjoyment and sense of place.

Birds were located throughout Yosemite, often with different species occupying particular areas of the park. As through the visual sense, listening in different areas provided an experience unique to that location. The sounds of wildlife varied due to the time of day, adding a further sonic dimension. Joseph Grinnell and Tracy Storer’s 1924 publication on the park’s wildlife, *Animal Life in the Yosemite*, provided a detailed account of the biophony. At Black’s Creek, west of Coulterville in 1919, valley quail were common. ‘Males were calling all through the day,’ they wrote, ‘so often there was an almost continuous chorus of “guard” notes. Less often we heard one of the birds “explode,” when usually excited, the note then sounding like that made by striking a long wire strung between two supports.’⁴⁴ At night visitors heard the voice of the California Pigmy Owl, which was audible more than any other nocturnal bird. Its ‘slow trill, rather mellow’ call was heard near Bridalveil Falls, at Camp Ahwahnee and near to Camp Yosemite.⁴⁵ Band-tailed pigeons produced a dominant sound when present. It was not just their vocalisation, a ‘deep, rolled, *coo’-coo’*, or *too-coo’*,’ but the noisy flap of their wings.

⁴³ Victoria Howell, *A Trip to the Yosemite Valley: Letters Giving the Author’s Experience on a Ten Days’ Trip* (Oakland: J. Howell and Company, 1908), p. 21.

⁴⁴ Joseph Grinnell and Tracy Irwin Storer, *Animal Life in the Yosemite: An Account of the Mammals, Birds, Reptiles, and Amphibians in a Cross-Section of the Sierra Nevada* (Berkeley: University of California Press, 1924), pp. 267-269.

⁴⁵ *Ibid*, pp. 311-312.

Long-term residents recalled the sound made by flocks that numbered over 2000 birds and their coos and flapping wings that together produced a raucous sound.⁴⁶

Alongside the sounds of birds, other wildlife added to the biophony. The American Black Bear, commonly only made 'sniffs or snorts,' yet when frightened or wounded produced a loud growl or brawl.⁴⁷ The calls of mountain coyotes were often heard, especially in areas above the Valley. Coyotes added howling, high-pitched barking and shrill wails to the soundscape. At Tenaya Lake in July of 1915, Grinnell and Storer noted hearing two braying burros set up a succession of coyote calls.⁴⁸ Elk were capable of adding dramatically to the soundscape. Edward Bosqui reported encountering a herd of Elk at Dry Creek, Snelling, in 1850 and recalled that he 'was suddenly awakened by the heavy tramp and noise of large animals.'⁴⁹ The Gray Fox, with its 'sharp bark', the penetrating scream of the North Western Mountain Lion, the 'sharp metallic alarm note or whistle, clink,' of the California Ground Squirrel and singing cicadas enhanced the soundscape. The wildlife of Yosemite, through its wide diversity, added complexity to the soundscape. Alongside the sounds of water and weather systems, the specific topography of the park generated a complex and unique soundscape.

Irresponsible human behaviour led to some species being removed from the park. As every sound added texture to the park's aural qualities, with the expulsion of these animals went their individual contributions to Yosemite's soundscape. National Park Service policy in the late nineteenth and early twentieth centuries led

⁴⁶ Ibid, p. 277.

⁴⁷ Ibid, p. 64.

⁴⁸ Ibid, pp. 75-76.

⁴⁹ Ibid, p. 241.

to the elimination of Yosemite's wolves so that their characteristic howl, which symbolised the 'call of the wild', was eliminated from the park.⁵⁰ Part of the visual wonder of Yosemite's wildlife had been the sight of Bighorn Sheep, their agility in climbing being a source of astonishment. John Muir, who despised the domesticated sheep that shepherds grazed in the Sierra Nevada, so delighted in these hooped mountaineers that he devoted a chapter to them in *The Mountains of California*.⁵¹ These sheep added to the diversity of Yosemite's soundscape; during the rutting or breeding season in November the sound of Bighorn combat resounded like clapping thunder.⁵² Yet, by 1914, these sounds were no longer heard in Yosemite, a result of the troika of disease, hunting and habitat destruction that led to their absence in the park.⁵³

Development of a tourist soundscape

Tourism introduced new sounds to Yosemite, especially in the Valley where the park's commercial enterprises were situated. These sounds altered the park's intrinsic sonic qualities and how visitors perceived the place. Vaudeville, the xylophone and the laughter of ice skaters on the Camp Curry rink were just some of the new entertainment sounds that became a part of the park's soundscape as tourism developed in the early 1900s. Thoughts of being in a natural environment were replaced with notions of being in a human controlled space due to the familiar

⁵⁰ Robert M. Schoch, *Case Studies in Environmental Science* (Minneapolis: West Publishing Company, 1996), p. 73.

⁵¹ Muir, *The Mountains of California*.

⁵² Peter Fimrite, 'Bighorn Sheep Reintroduced to Yosemite's Wilderness, SFGate, April 2015, <<http://www.sfgate.com/bayarea/article/Bighorn-sheep-reintroduced-to-Yosemite-s-6178654.php>> [accessed 22 January 2016].

⁵³ Schoch, *Case Studies in Environmental Science*, p. 73. Bighorn Sheep were reintroduced into Yosemite National Park in 1986.

urban sounds that visitors heard there. Backcountry areas still abounded with natural sounds without any particular human influence, but the Old Village displayed the sonic hallmarks of tourism. Alongside bringing cultural sounds, Euro-Americans came to the Valley with their own beliefs – they interpreted the sounds of the park as messages from and praise for the glory of God.

Tourists thought that Yosemite Valley was a spiritually uplifting place due to both its aural and visual qualities. When Caroline Hazard, president of Wellesley College, Massachusetts, first visited the park in the early 1900s she was impressed by its cathedral-like qualities. The walls of the Valley, Hazard wrote, soared like the ‘spires Of Nature’s great Cathedral.’⁵⁴ The experience of both the landscape and soundscape gave visitors an emotion that reminded them of entering a place of worship. Tourists were reduced to silence when seeing the park for the first time, a mark of the admiration and reverence they felt for the place. Charles Wesley Kyle wrote that he heard in Yosemite sounds that gave praise to God. ‘In tones of majesty,’ Kyle wrote in 1915, ‘the very heart of nature speaks, proclaiming the power and glory of the King of Kings. The earth trembles and the very air is vibrant as it receives the message.’ This message, Kyle wrote, rebounded through the cañons and forests, till finally, ‘caught by the winds the melody is carried to the upper sentinels which in turn flash the message to the sun.’⁵⁵

Tourists associated the natural sounds that they listened to in Yosemite with the hymns, sermons and music they heard in church. Cora Morse claimed that she

⁵⁴ Caroline Hazard, *The Yosemite and Other Verse* (Boston and New York: Houghton Mifflin Company, 1917), p. 5.

⁵⁵ Charles Wesley Kyle, *Yosemite: The World’s Wonderland* (San Francisco: Charles Rae, 1915), p. 13.

heard hymns in the waterfalls, and that it was if the sounds of nature were giving praise to God.⁵⁶ This sense of spirituality was emphasised by the National Park Service as well, which gave official validation to the idea that Yosemite was a religious space. Yosemite Park Superintendent Kittredge advised park visitors that they were ‘entering a cathedral-like canyon,’ and asked for their assistance to ‘preserve the solemnity of the national park and help other visitors to get that mental and spiritual stimulation from association with this impressive area.’⁵⁷

It was therefore only logical that a structure was built in Yosemite to offer praise to God. During the summer of 1879, the sound of construction was heard in the Valley as the knock of hammer on wood and nail rang out. Between Black’s Hotel and Leidig’s, on rising ground near the Four Mile Trailhead, Yosemite Chapel, looking like it was more in place in New England than the American West, rose from the valley floor. Holding its first service in June of 1879, the Chapel was a visual edifice to, and a sonic messenger for, the celebration of Christianity. Whereas previously the sounds of God had been heard through interpretation of natural sounds, the chapel brought the sounds of didactic Christian worship to Yosemite.

From within the chapel came the sound of hymns being sung to the notes of the organ that spread out into the immediate area of the Valley. The Chapel also had a bell, donated by Mr Bacon of Oakland, California.⁵⁸ James Hutchings remarked that ‘when its first notes rung out upon the moon-silvered air, on the evening of

⁵⁶ Morse, *Yosemite As I Saw It*, n.p.

⁵⁷ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851 – 1994 El Portal, Folder 1 of 2 Folder 0004. 501 Yosemite National Park Publicity Part II, 1941, 1942, 1943. ‘U.S Department of the Interior, National Park Service, Yosemite National Park California.’

⁵⁸ Yosemite Valley Chapel [online]. ‘Our History, Mission, and Ministry; The History of Yosemite Valley Chapel’. [cited 29 January 2016]. Available from: <<http://www.yosemitevalleychapel.org/history.htm>>.

dedication, it was the first sound of “the church-going bell” ever heard in Yo Semite.’ Quoting from Alfred Tennyson’s poem, *Ring Out, Wild Bells*, Hutchings wrote “Ring out the false, ring in the true...Ring out the darkness of the land, Ring in the Christ that is to be.”⁵⁹ Hutchings heard the bell as the sound of God’s true word, and the area covered by its resounding ring as the church’s parish. The Chapel’s bell created an auditory space, within which its sound was the authoritative voice.⁶⁰ The sound of the bell overarched the sounds of nature, as if God’s voice was the commanding sound of the Valley.

On Easter Sunday’s at Mirror Lake in the Valley, the physical edifice of Yosemite became a symbolic church.⁶¹ The Easter Sunrise Service given at the lake filled the Valley with the sounds of Christianity. In an area that had been dominated by the sounds of nature, with the ephemeral lake fed by Tenaya Creek, the sounds of religion became the authoritative sound, taking possession of the acoustic space. When the sun rose at seven o’clock, the College of the Pacific’s A Cappella Choir broke into Mendelssohn’s setting of the twenty-first psalm. Choir singer Pauline O’ Briant recalled how the dramatic effect of the sun rising and the choir singing drew ‘oohs and aahs’ from the gathered crowd.⁶² From a promontory that extended out onto the lake the minister preached his sermon to several thousand worshippers. He led the ‘Easter Affirmation’ and was joined by the congregation as thousands of

⁵⁹ James Mason Hutchings, *In the Heart of the Sierras: The Yo Semite Valley, Both Historical and Descriptive: And Scenes by the Way. Big Tree Groves, The High Sierra, with its Magnificent Scenery, Ancient and Modern Glaciers, And Other Objects of Interest; With Tables of Distances and Altitudes, Maps etc. Profusely Illustrated* (Oakland, Pacific Press Publishing House, 1888), pp. 355-356.

⁶⁰ Ibid.

⁶¹ The first Easter Sunrise Service at Mirror Lake was given in 1932, Alfred Runte, *National Parks: The American Experience 3rd Edition* (Lincoln: University of Nebraska Press, 1987), p. 108.

⁶² Pauline O’ Briant ‘Lift Thine Eyes’, in *Inspiring Generations: 150 years, 150 Stories in Yosemite* (No place: Yosemite Conservancy, 2014), p. 367.

voices filled the air and acclaimed 'He is risen.'⁶³ The choir sang from a platform on the lake with instrumental accompaniment. Singers proclaimed "Jesus Our Lord, We Adore Thee' and 'Heavenly Light', their voices joining the tones of the flowing water that ran out of the lake into Tenaya Creek and to the Merced River.⁶⁴ The *Yosemite Visitor's Guide* stated that 'on either side great granite walls rise precipitously three to four thousand feet above, lending a cathedral-like quality to the acoustics,' and that the choir and instrumental accompaniment was added to the 'music of Yosemite National Park's many waterfalls.'⁶⁵ This claimed that the sounds of Christianity complimented, or even added to the natural sounds of the Valley. These sounds were not heard as a corruption of Yosemite's sonic environment, but rather as an enhancement.

The reach of the Easter Sunrise Service went beyond the shores of Mirror Lake. KMJ radio station of Fresno, California, broadcasted the service for over 25 years in what was described as a 'tradition of longstanding with the people of California and Nevada.'⁶⁶ Microphones were placed around vantage points at the water's edge to give listeners a full appreciation of the service and its sounds. This, the broadcast stated, would enable listeners to 'fully appreciate and grasp the beauty, the magnificence of the latest sunrise services in the United States.'⁶⁷ The

⁶³ YNPA, El Portal, Yosemite National Park, Old Central Files Folder 1 0004.501 Yosemite Publicity. Easter Sunrise Service. Mirror Lake, Yosemite National Park, California, Sunday, April 5, 1942 at 10:33am.

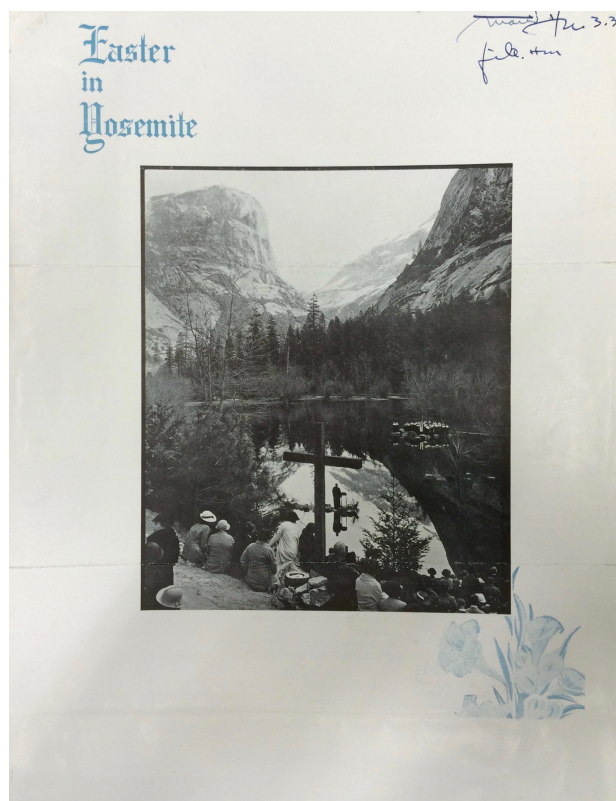
⁶⁴ Ibid.

⁶⁵ YNPA, El Portal, Yosemite National Park, Old Central Files Folder 1 0004.501 Yosemite Publicity. Yosemite Visitors Guide, Published by Yosemite Park and Curry Co., March 26 Through April 8, 1942.

⁶⁶ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 4 Subseries 3 Historical Files Box 4 Folder 277. To Hilmer Oehlman, General Manager, YPCC from Jeff Nagle, Program Manager, KMJ Fresno, California, McClatchy Broadcasting Company, 7 March 1963.

⁶⁷ YNPA, El Portal, Yosemite National Park, Old Central Files Radio Scripts, 1949, 1942 Scenes, Folder 23. KMJ Radio Broadcast – Mirror Lake, Yosemite National Park, Saturday April 24, 1943, 3:35 pm.

use of technology brought the sounds of Yosemite into the homes of Americans. These were not natural sounds, but sounds that had a message and a purpose. Listeners on the radio heard the benedictory prayer and the sound of a trumpet before the choir sang a chorale by Bach.⁶⁸ These broadcasts created an association between the listener and the park. This connection with the sounds of Yosemite was not one of the intrinsic qualities of the park's natural soundscape but of the sounds of Christianity.



8. The sermon was preached from a platform on the lake. Note the choir's prominent position on the water, from where their voices rang out over the area and were joined in song by the congregation.⁶⁹

⁶⁸ Easter Sunrise Service. Mirror Lake, Yosemite National Park, California, Sunday, April 5, 1942 at 10:33am.

⁶⁹ YNPA, El Portal, Yosemite National Park, Old Central Files Folder 1 0004.501 Yosemite Publicity, Image from the Easter Sunrise Service, Mirror Lake, 5 April, 1942.

Along with church sounds, changes to the soundscape occurred due to the construction of roads and trails that facilitated greater tourist access. New routes into Yosemite towards the end of the 1800s heralded the end of the Valley's sonic isolation from the advance of Euro-American noise. Roads during this period were rudimentary and followed the course of traditional native trails. However, boosters who sensed the growing interest in Yosemite and the financial rewards available through tourism, constructed new roads and improved existing routes. These roads required landscaping and dynamite was widely used to blast aside rock. The sound of 'improvement' and industry disturbed the preponderance of natural sounds. Caroline Churchill witnessed the construction of one of these roads in 1884 and recalled the blasts and reports that reached into the dozens in quick succession.⁷⁰ The first road to reach Yosemite's valley meadows was the Coulterville Road, which had been rerouted to detour through the 'Merced Grove' in 1874, thereby bringing a new age of tourism as the park was opened to vehicles. To dedicate the opening of the road, celebrations were held in the Valley with a procession, rejoicing and the dramatic firing of cannon to sonically announce the white man's conquest over the previously hard to access and indomitable Valley.⁷¹

Roads and trails acted as corridors of human generated sound and conduits for the advance of Euro-American noise. Prior to the arrival of the automobile, tourists had accessed the Valley by stagecoach. The chassis and wheels of wagons

⁷⁰ Caroline M. Churchill, *Over the Purple Hills, Sketches of Travel in California Embracing All the Important Points Usually Visited by Tourists*, p. 181, 'we are informed that a number of blasts are about to be touched...we turn our horses backward a few feet, and the blasting commences. The reports – a dozen or more – follow in quick succession.'

⁷¹ Linda W. Greene, *Yosemite: The Park and Its Resources, A History of the Discovery, Management and Physical Development of Yosemite National Park California. Historical Narrative* (U.S. Department of the Interior, National Park Service, 1987), p. 97.

were noisy and lessened the opportunity to hear natural sounds on the road. In 1902 Gus Wurdinger wrote of his journey as part of a freight team, and of the accompanying sounds that were generated. It was a 'ten to sixteen horse hook-up,' Wurdinger recalled, 'had a yoke of bells on the lead team, and you could usually hear the "ickety, rack", because passing, even where there was a slightly wide spot, was exciting.'⁷² To transport these stages, horses and mules were brought into service, bringing non-native animals sounds to the trails and into Yosemite. With mules came the sounds of labour and commerce, as they transported people and supplies down into the Valley. The Reverend Buckley noted the effect of mules on the soundscape in the 1870s during his trip to Yosemite. The mule, Buckley wrote, sounded out of place in Yosemite as it,

'opened his mouth little by little, the mighty chasm yawning until it seemed like one of the heads of alligators which adorn primary geographies, and from the abyss came forth a sound such as only a mule or his father could produce – loud bass, baritone, tenor, all mixed, not blended, prolonged until the mountain rang again. It was a trumpet blast, and its inspiring notes stirred every animal in the party. Having uttered this voice, before my friend had time to deserve such a reproof as Balaam received, the mule straightened his ears and started. We shall hear his voice again.'⁷³

With the building of transportation links to Yosemite, the isolation that had once preserved the Valley's soundscape was conceded. Sounds heard on these trails

⁷² Yosemite Research Library (YRL), Yosemite Valley, Yosemite National Park. Y-4A 979.447 #32. Gus Wurdinger 'Yosemite Valley as it Was in 1902' Typewritten manuscript, 6 August 1964.

⁷³ Reverend J. M. Buckley, *Two Weeks in the Yosemite and Vicinity* (New York: Nelson & Phillips, 1873), pp. 17-18.

trumpeted the emergence of a new culture in Yosemite. This was not to be a quiet invasion, but one that would radically alter the soundscape of Yosemite.

The late 1800s revealed that tourism was the biggest threat to Yosemite's natural soundscape. James Hutchings, who provided stories of Yosemite's wonders through his *Hutchings' California Magazine*, realised that there was money to be made through providing tourist accommodation in the Valley. Construction of lodgings began shortly after 'discovery' of the Valley, and by 1876 a viable tourism industry had been established. In July of that year there were already three hotels, two stores, three saloons, a laundry and several barns in the area that is now known as the 'Old Village,' located on the Valley floor.⁷⁴

With a ready supply of timber for building in the Valley, all that was needed was to cut the wood into serviceable boards. For this purpose, James Hutchings constructed the Valley's first sawmill. Situated at the foot of Yosemite Falls, the sawmill operated by John Muir used storm-felled wood and water from Yosemite Creek to provide power.⁷⁵ As Muir only used naturally felled trees, the sawmill was not viewed as destructive to Yosemite's environment. However, the mill compromised the Valley's soundscape. In time the mill was removed and its effect on Yosemite's soundscape went with it. But a restored sawmill, Sturgeon's Mill in Sebastopol California, which was used in Catherine Tatge's PBS production of Muir's

⁷⁴ Linda W. Greene, *Yosemite: The Park and Its Resources, A History of the Discovery, Management and Physical Development of Yosemite National Park California. Historical Narrative*, p. 115.

⁷⁵ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y – 4 Yosemite History, #34 'History of the Yosemite Region' by Ralph S Kuykendall, typed, undated manuscript covering through 1920. In August 1870 Joseph LeConte, founding member of the Sierra Club, came across the mill. 'Today to Yosemite Falls,' LeConte wrote, 'stopped a moment at the foot of the falls, at a sawmill...here found a man in rough miller's garb...it was John Muir'.

life, provided a sense of its effect on the soundscape.⁷⁶ The sawmill was a noisy operation – creaking machinery, and the noise of saw through timber brought industrial sounds to the Valley.⁷⁷ These boards were then fashioned into boarding houses; the crack of nails being hammered into wood was the sound of a fledgling tourist industry.

In the ‘Old Village’ (now removed) a variety of buildings were constructed to provide tourist facilities. These facilities brought commercial sounds into Yosemite. Natural sounds were still prevalent in the Valley but they increasingly became overlaid with the noise of business, entertainment and service industries. One business that demonstrated the new sounds of the Valley was the Cosmopolitan Bathhouse and Saloon. A single storey structure, the Cosmopolitan opened to the public in 1871 and closed in 1884 when it fell afoul of the park’s commissioners. Situated next to the Merced River near to Sentinel Bridge, the Cosmopolitan was renowned for its luxurious comforts that awaited weary and dusty travellers.

J. H. Beadle, a guest of the Cosmopolitan, wrote enthusiastically of the establishment’s facilities, its fine furnishings, entertainment and bar.⁷⁸ The saloon’s aural qualities were akin to that of any high-quality city establishment. The knock of billiard balls, (the tables had been carried along with all the other fixtures and fittings into the Valley on the backs of mules), the sound of discs on the shuffle boards,

⁷⁶ Sturgeon’s Mill was originally built in the 1880s for a property near the Russian River.

⁷⁷ Nicholas Senn also wrote of encountering sawmills on the way from Wawona to Yosemite Valley, writing of the noise they generated. He referred to the sawmill as a ‘monster octopus’ and of the ‘clash of the woodman’s ax (sic), the monstrous rasping sound of the haw-saw, and the dull thud of falling trees, are heard on every side,’ wrote Senn, clearing not hearing the sound of the sawmill as the sound of progress., pp. 122-123.

⁷⁸ Carl P. Russel, *One Hundred Years in Yosemite* (Berkeley: University of California Press, 1932), Chapter 8.

quoits being thrown and the bangs of the shooting gallery, reimagined Yosemite's soundscape.⁷⁹ Famed for its cocktails, the sounds of chinking glass and bottles filled the bar area as conversations were enjoyed over cigars. Those wanting to relax in quieter surroundings retired to the reading room where the saloon's sounds became muffled.⁸⁰ The establishment not only brought in new sounds to Yosemite, but altered the perception and meaning of natural sounds. Sitting in the comforts of the Cosmopolitan, the sounds of wildlife, storms and the power of nature were tamed by the creation of an urban saloon soundscape that enclosed visitors in a sonic cocoon of familiarity and security. This altered their relationship with the Valley, a manufactured soundscape that distanced tourists from nature.

Auxiliary businesses were founded that provided services to the increasing numbers of tourists who came to experience the park. These businesses created a humdrum of commercial noise. The neighing of horses was heard from the stables built for J. J. Westfalls' meat market and sounds of the dining hall came from Degnan's restaurant.⁸¹ To keep the Valley's horses operational a blacksmith's forge operated by Johnny Finch was built. From his workshop came the sounds of a blacksmith's trade, the clang of hammer on anvil as Finch performed his work. These were busy, commercial sounds, the beginnings of a thriving business area.⁸²

Tourists' demands for fresh dairy products led to new sounds being heard in the park. Due to transportation difficulties and prior to the introduction of suitable refrigeration, cows were brought into the Valley to fulfil demand. On the Valley's

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Linda W. Greene, *Yosemite: The Park and Its Resources, A History of the Discovery, Management and Physical Development of Yosemite National Park California. Historical Narrative*, pp. 147-148.

⁸² Ibid.

meadows by the old Stoneman House boarding lodge (it burned down in 1896), John Degnan grazed his dairy herd of twenty head. These cows brought the sound of domesticated animals into areas that had once belonged to the sounds of wild animals.⁸³ Accompanying these cows were mules and horses, which were fenced in to pasture on the meadows.⁸⁴ Mooing cows, neighing horses and the whinny of mules spilt out into the Yosemite soundscape and spoke of the needs of tourism. Added to these sounds were the bleats of sheep that wandered around the meadows. To seemingly complete these farmyard sounds were the clucks of chickens that were kept by Galen Clark to supply eggs to tourists, across the road from the Four Mile trailhead.⁸⁵ A further and final livestock sound came from the slaughterhouse, which operated from around 1878 to 1892. Originally run by Juan Jerona and then by Joseph J. Westfall, the slaughterhouse supplied meat to the Valley's hotels and public. Located south of the Northside Road and to the west of the old bear pits, the sound of death issued from the slaughterhouse before the dispatched cattle were hoisted by rope between trees.⁸⁶ Other sounds were added, tourists shopping in Degnan's store, woodturning in Stark's workshop and the

⁸³ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4 #13, Early Yosemite History Notes Gathered at Old Timer's Campfire, Compilation Gathered 30 May 1943 at the Residence of Superintendent Kittredge.

⁸⁴ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4 #23. 'Speech Given by Mr. William Colby of San Francisco, Camp 14 Anniversary Program 30 June 1939 'Yosemite Retrospect and Prospect.' Colby stated, 'I can remember when I first came here (45 years before) Stoneman Hotel used to stand out here in the meadow...In the meadows they had fences all around to pasture stock they had in connection with saddle and pack trains. All the upper end of the Valley was trampled over by animals – a few cows kept for milk and a great many mules and horses...'

⁸⁵ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4 #13 Early Yosemite History Notes Gathered at Old Timer's Campfire, Compilation Gathered 30 May 1943 at the Residence of Superintendent Kittredge.

⁸⁶ For details of the slaughterhouse see, Linda W. Greene, *Yosemite: The Park and Its Resources, A History of the Discovery, Management and Physical Development of Yosemite National Park California. Historical Narrative*, pp. 147-148. See also, YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4 #13 Early Yosemite History Notes Gathered at Old Timer's Campfire, Compilation Gathered 30 May 1943 at the Residence of Superintendent Kittredge.

general noise and bustle of an area that was becoming increasingly commercialised. The area around the Old Village no longer sounded like it was a natural space; rather, it had the sonic qualities of a domesticated space.

While tourism to Yosemite increased with its establishment as a national park in 1890, it was not until automobiles were permitted entry in 1913 that visitation increased substantially. With the construction of better roads like the Tioga Pass, the era of mass tourism in Yosemite began in the 1910s. With its relative proximity to areas of mass population like San Francisco, Yosemite attracted visitors beyond keen nature enthusiasts. Families started to visit the park, drawn by the development of entertainment there. Yosemite was not just a place to come to experience a wonderland of nature, but also to experience a wonderland of fun. The development of entertainment in Yosemite created a sonic barrier between the visitor and the park that lessened their experience of wild nature.

Increased tourism to the park generated new business opportunities. David and Jennie Curry started a boarding business in the Valley in 1899. Camp Curry was initially a small affair with seven sleeping tents and a further larger tent that acted as both a dining room and kitchen. However, the camp, with its more affordable accommodation, was an immediate success. Two hundred and ninety people registered in the first year alone, which resulted in the camp extending facilities through the addition of eighteen further tents.⁸⁷ During 1913 Camp Curry catered for over four thousand visitors who made use of its two hundred and forty visitor

⁸⁷ Linda W. Greene, *Yosemite: The Park and Its Resources, A History of the Discovery, Management and Physical Development of Yosemite National Park California. Historical Narrative*, p. 351.

tents. By 1915 the camp could accommodate up to nine hundred guests at any one time, and in that year alone over eight thousand guests stayed there.⁸⁸

Central to the camp's success was the foresight of David Curry to understand what kind of experience his guests wanted. Increased wealth and leisure time in the 1900s meant that more Americans were taking vacations. A new generation of tourists were looking for a vacation experience, not just a nature experience. As other tent accommodation businesses were opened in the park, David Curry believed that to be successful Camp Curry had to offer something extra in this new era of tourism. It was through entertainment that Curry established a commercial edge.

That development of entertainment brought a new soundtrack to the park that further removed tourists from Yosemite's natural sounds. Under David Curry's guidance, the camp introduced entertainment that became a hallmark of the business and of Yosemite.⁸⁹ Curry drew on older entertainments in the park. Prior to the Curry's arriving in Yosemite, entertainment had already become an established feature of the park. Mirror Lake's tranquil waters had been disturbed by the construction of a platform that had been built out over the lake for 'old fashioned' dancing.⁹⁰ The 'firefall' that became a hallmark of Camp Curry was performed before the Curry's opened their business.

⁸⁸ Ibid, p. 471.

⁸⁹ National Park Service, 'Cultural Landscape Report, Camp Curry Historic District', Prepared by Daniel Schaible, Historical Landscape Architect, Peter Chapin, Historian and Brian Chilcott, Historical Landscape Architect, Yosemite National Park, (2010).

⁹⁰ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4 #13. Early Yosemite History Notes Gathered at Old Timer's Campfire, Compilation Gathered 30 May 1943 at the Residence of Superintendent Kittredge. Quote, "Howard's Cabin" Location pointed out to Mirror Lake, purchased

Camp Curry took entertainment in Yosemite to a new level. The enhanced entertainment program brought new sounds to the park. This sonic incursion separated tourists physically and psychologically from the sounds of nature. The entertainment offered was certainly extensive as detailed in the *Camp Curry Yosemite Road Guide*. 'For a good time, go to Camp Curry,' the brochure proclaimed, where 'swimming, tennis, croquet, bowling and pool, baseball and kindred sports fills the days about camp.'⁹¹ The splash and laughter of tourists who dived into the pool, the knock of the croquet mallet and the cries of excitement generated by a homerun became a part of the Valley's soundscape.

Guests themselves had originally provided entertainment for the traditional Camp Curry campfire evenings, bringing their own bundles of wood, telling stories and singing songs.⁹² However, as the camp grew in size and popularity, the company provided entertainment so that the camp determined what people heard and how they interpreted the area sonically. Stories were still told but these became organised events, as was the singing of campfire songs and popular ballads. Vaudeville was performed out-of-doors, and though at times impromptu, more often than not it occurred alongside the sounds of an orchestra or quartet employed to entertain guests.⁹³ The movies came to Yosemite in the 1920s, on the back of the Camp Curry Registration Building a movie booth was installed with the screen hung

by state in 1866. Leidig says a platform was built over the water by Smith where visitors did old fashioned dancing...'

⁹¹ YNPA, El Portal, Yosemite National Park, YPCC Series VIII: Subseries 8 Folder 2714. 'Yosemite Road Guide: Camp Curry' Brochure Circa 1930.

⁹² Sanford E. Demars, *The Tourist in Yosemite: 1855 – 1985* (Salt Lake City: University of Utah Press, 1991), p. 69.

⁹³ YNPA, El Portal, Yosemite National Park, YPCC Series VIII: Subseries 8 Folder 2714, 'Yosemite Road Guide: Camp Curry' Brochure Circa. 1930.

between two suitably sited trees.⁹⁴ To complement the entertainment program in 1923 the Camp Curry dance floor, which provided music and dancing for 400 hundred guests, was placed out-of-doors.⁹⁵ At Yosemite Lodge an outdoor dance floor was in use as well by 1927 and this brought the musical strains of the band out into the Yosemite night, except on Sundays.⁹⁶ Being a family tourist destination, children were not left out of the entertainment program. Camp Curry established the Kiddie Kamp in 1921, complete with a miniature train to entertain Yosemite's younger visitors.

Traditionally Yosemite underwent a quiet period during winter when snow blanketed the park. However, growing interest in winter sports, and the profit to be made through providing facilities for tourists, ushered in aural changes during Yosemite's winter months. By 1927 winter sports had become firmly established. A range of activities that included skating, sleighing, tobogganing and horseback riding were enjoyed by tourists.⁹⁷ Collectively, all these winter sports expanded the human sonic imprint on the park. The toboggan constructed by Camp Curry, where tourists shot down a slide on an ash-can, brought the sound of scraping metal as riders whooshed down the slide. Yosemite's winter entertainment program was designed like the summer program, for fun. The soundscape was filled with the sounds and thrills of winter sports. Ansel Adams described the 'shrill screams' of sledge riders

⁹⁴ National Park Service, 'Cultural Landscape Report, Camp Curry Historic District', p. 55.

⁹⁵ Ibid, p. 186.

⁹⁶ *Yosemite National Park, California, Rules and Regulations* (U.S. Government Printing Office, 1927).

⁹⁷ Ibid.

and of the ‘hilarious laughter’ of those who propelled themselves down the slide.⁹⁸

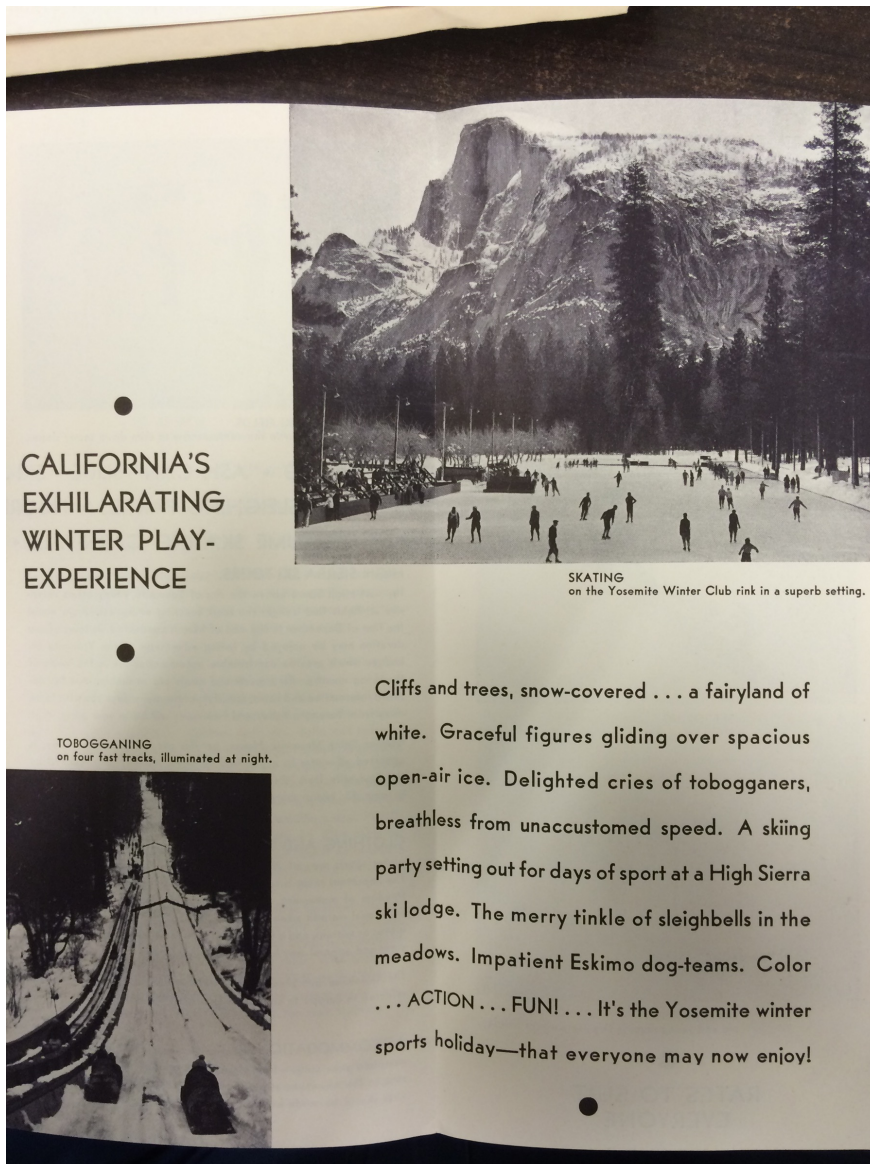
It was the soundscape of a winter entertainment wonderland.

The natural quiet of a Yosemite winter was overarched by the sounds of winter sports. Sound was even added to the winter sports themselves. Tourists on the Valley floor enjoyed a sleigh ride to the accompaniment of jingling bells as they slid across the once naturally quiet landscape.⁹⁹ The Valley’s ice rink added to the aural spectacle of a Yosemite winter. The laughter of skaters who glided on the ice, watched by several hundred spectators, was enhanced by music played to enhance the theme park feeling. The coming of night did not halt this sonic display as the rink was floodlit.¹⁰⁰

⁹⁸ Ansel Adams, *The Four Seasons in Yosemite National Park*.

⁹⁹ *Ibid.*

¹⁰⁰ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 8, Marketing/PR Ephemera, Folder 2732, Yosemite Winter Sports Pamphlets, *Yosemite Winters Sports* (pamphlet) (U.S.A., 1940).



9. YPCC Series VIII: 3 Folder 2730, photograph illustrating how the thrill sounds of the ice rink and toboggan run compromised the natural soundscape.

The playing of music at the ice rink was part of the conquest of Yosemite's soundscape. This music was not a by-product of entertainment, but rather a sound created to supplant and control the soundscape. Early tourists, before the admission of automobiles, had themselves overlaid the natural sounds of the park by yelling to

their friends down in the Valley from the trails above, even from as high as Glacier Point.¹⁰¹ In the natural quiet of Yosemite they tried to overpower the ‘silence.’ This notion of dominating the soundscape was the rationale behind other sonic events that were generated for spectacle.

Recalling the years of early tourism in the Valley, an excerpt from the *Yosemite Oral History* recounted the story of a bomb salute that was issued from Glacier Point. To create this salute, a stick of dynamite was placed on an anvil, then, ‘with fuse attached,’ another anvil was placed on it and the dynamite blown. ‘Down in the Valley at the appointed time,’ the ‘old-timer’ recounted, ‘when the blast went off, you couldn’t see anything as it was daytime, but you sure heard plenty. The sound of the explosion, echoed between the valley walls for as many as fifteen more times, by actual count.’¹⁰² Further attempts were made to dominate the soundscape through the creation of other loud sounds. At a ‘sporting event’ bets were placed on a five-gallon coal oil can that was thrown down ‘Telephone Trail.’ The ‘noise of it could still be heard,’ it was recalled, ‘bouncing down the mountain side even after 4 or 5 minutes.’¹⁰³ In the creation of these sonic spectacles the instigators established an artificial sublime, but one that they were in control of. These events demonstrated that despite nature’s loudest sounds, humans generated noise that was just as immense and capable of dominating the Valley. It was a sonic conquest of the Valley that rendered the sounds of nature subservient to those made by humans.

¹⁰¹ YRL, Yosemite Valley, Yosemite National Park, #34 Oral History, 979.447 Y – 4, Yosemite History.

¹⁰² Ibid.

¹⁰³ Ibid.

The most well-known entertainment event to occur at Yosemite National Park was the 'firefall.' James McCauley, proprietor of the Mountain House Hotel, inadvertently initiated the spectacle in 1872 when he kicked burning embers from the campfire off Glacier Point. Seen from the Valley some 3200 feet below, the cascading embers produced a stunning visual effect that resulted in tourists calling for performances of the 'firefall.' Although long famed as a visual performance, the firefall was also a sonic event, with sound used to enhance its visual effect. To announce the moment the fire fell at 8:30 in the evening, McCauley had a brass foghorn called the 'firefall horn' blown. The trumpeting horn was the climax to the evening and the sonic signal for the beginning of the spectacle. On occasion McCauley added to the spectacle by throwing sticks of dynamite off the Point. The sound of these explosions reverberated around the Valley like the spectacular sounds of Yosemite's waterfalls.¹⁰⁴

The firefall was halted after 25 years when McCauley was evicted from Glacier Point. However, David Curry restored it as he considered the event a great opportunity to promote his business. Under David Curry the firefall was as much a sonic as a visual event, as he keenly used sound for promoting the family business. Due to his famous booming voice, Curry was known as 'The Stentor,' a herald of the Greek forces during the Trojan Wars whose voice was said to be the equal of fifty men. Curry would ensure that one of the last memories his guests would have of Yosemite was Camp Curry by standing on a platform as they left the camp bellowing to them a hearty 'farewell.' Such was the fame of his monstrous voice that it was

¹⁰⁴ YRL, Yosemite Valley, Yosemite National Park, 979.447 Y-4, Early Yosemite History Notes #13 Gathered at Old Timer's Campfire, Compilation Gathered 30 May 1943 at the Residence of Superintendent Kittredge.

celebrated in the lyrics of the 1914 song, *I'm Strong for Camp Curry*, that every night you can hear 'Curry yell. Oh its's "Hello, All's well."'¹⁰⁵

¹⁰⁵ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 8 Marketing and Public Relations Box 14, YPCC Series VIII: 3 Folder 827, Walter Le Bon, *'I'm Strong for Camp Curry'* Dedicated to Mr and Mrs David Curry, 1914. Noise was also celebrated in relation to Camp Curry through the song, *'Toot Your Horn for Camp Curry.'*



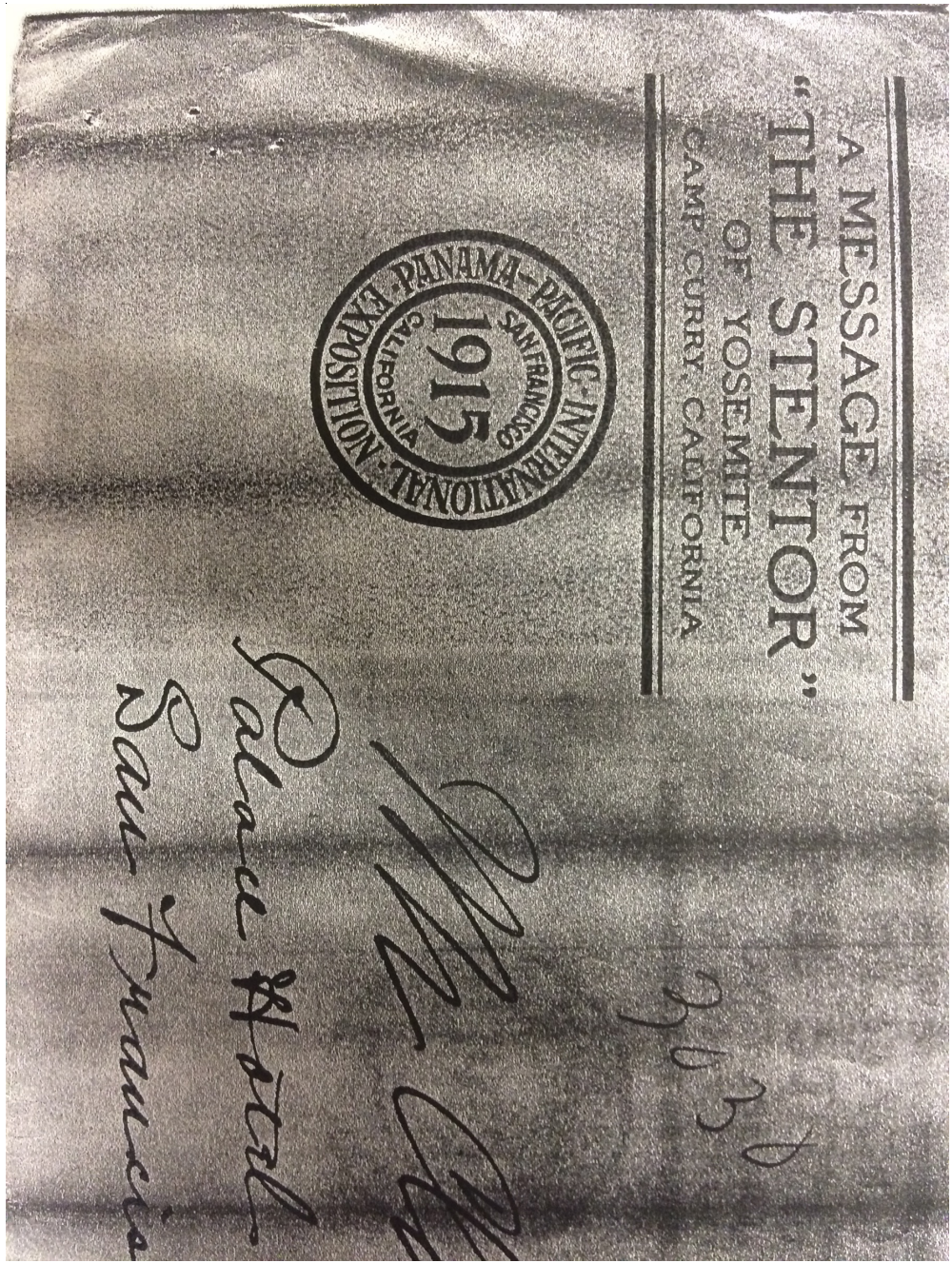
“FAREWELL!” For many years David A. Curry, founder of Camp Curry, bade a friendly, personal “Farewell” to each stage-load of guests as they departed. Mr. and Mrs. Curry, educators founded Camp Curry as a means of caring for other teachers and friends who wished to visit Yosemite in the days before there were any accommodations for the public.

1899-1948

CAMP CURRY

Fiftieth Anniversary Season

10. Yosemite Park and Curry Co. 1899-1948 Yosemite National Park YPCC Series VIII: Subseries 8 Folder 2713. This 50th Anniversary promotional pamphlet for Camp Curry illustrates the booming voice of David Curry and how it had become a part of the Valley experience.



11. YPCC Collection Series 4 Subseries 3 Historical Files Box 4 Folder 285. Renowned for his booming voice, David Curry 'The Stentor' sent letters in envelopes stamped with his moniker. The letters themselves were meant to sound like his booming voice calling from the Valley.

Curry made full use of his aural talents in the firefall by building anticipation like a circus ringmaster. He acted as a master of ceremonies for the firefall, calling from Camp Curry to Glacier Point a mile away. Curry's voice was the most important sound in the Valley to visitors when the firefall commenced, as they awaited with silent anticipation the beginning of the event. David Curry dominated the soundscape at this time; he symbolically overpowered the sounds of nature, making the Valley his sonic domain. The performance of the firefall spectacle was included in a script for a 1942 play that declared 'his voice could be heard 15 miles (away) if you count distance by the long trail, or a mile by direct distance to Glacier Point...7,214 feet up in the air.'¹⁰⁶ Curry would bellow 'Hello Glacier' from which a distant, but equally loud voice would reply, 'Hello...Camp Curry.' At this point in the proceedings Curry boomed back, 'Let the fire fall' at which time the burning embers cascaded down the Valley's wall.¹⁰⁷

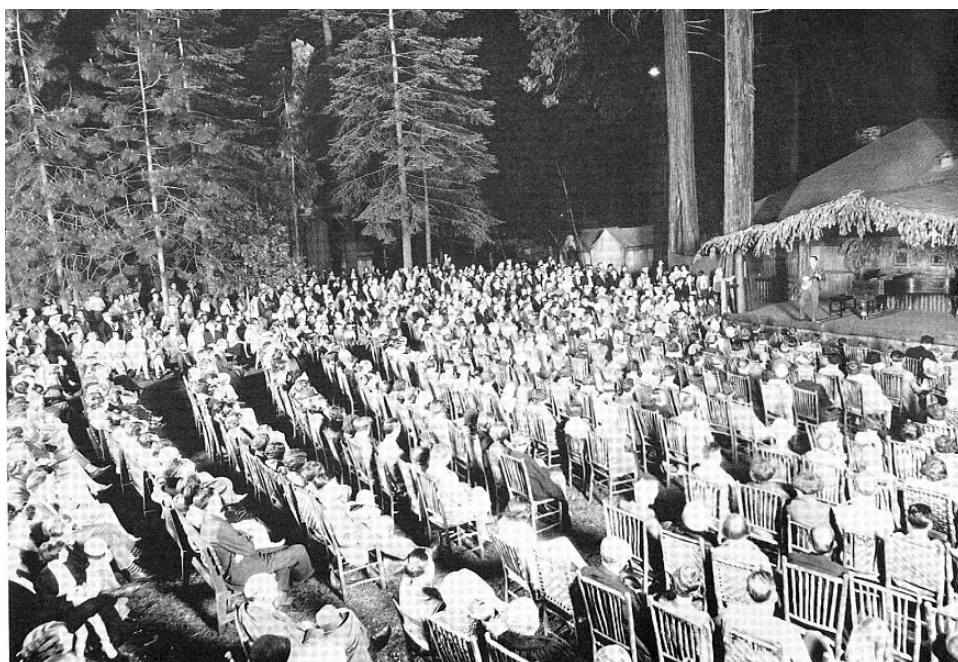
The firefall that commenced at 9 o'clock in the evening was the highpoint of the entertainment program. Vaudeville, widely enjoyed by tourists at the camp, had become the most successful form of American popular entertainment by the 1920s.¹⁰⁸ Ginny and Keith Bee, who ran entertainment at the camp, recalled that up

¹⁰⁶ YNPA, El Portal, Yosemite National Park, Yosemite Old Central Files Radio Scripts, 1949, 1942, Scenes Folder 23. 'Radio Script for 1942 play about Yosemite'.

¹⁰⁷ Ibid. The firefall was temporarily halted in 1913, before being reinstated in 1917 after the death of David Curry, finally ending in 1968. The calling did not stop with David Curry as others took on the task.

¹⁰⁸ Singers, song and dance acts, music ensembles and magicians entertained Americans in theatres across the nation; by 1910 New York City alone had a seating capacity that approached two million. See: Nicholas Gebhardt, *Vaudeville Memories: Popular Music and Mass Entertainment in American Culture* (Chicago: University of Chicago Press, 2017), pp. 1-3.

to three thousand people attended performances.¹⁰⁹ The evening's entertainment that started at 8 o'clock, consisted of puppeteers, singers, dancers, and, amongst others, xylophones, all building to the point when the caller hollered 'let the fire fall.' As the firefall started a musical accompaniment performed by the Lindeman Sisters singing the *Indian Love Call* added to the excitement of the event. At the height of the firefall's popularity, thousands of additional people spilt out onto the Valley's meadows too clap and cheer as the spectacle unfolded, making the Valley rebound with the sounds of appreciation. The firefall became at that point in time the sonic event of the Valley, overpowering the sounds of, and appreciation for, nature.¹¹⁰



12. Photograph of the evening entertainment at Camp Curry illustrating how the sounds of entertainment spilt out into the Valley.

¹⁰⁹ See the KPBS broadcast, *Firefall-California Gold*, written and produced by Huell Howser, January 1996, available online at < <https://blogs.chapman.edu/huell-howser-archives/1996/01/08/firewall-californias-gold-706/> > [accessed 2 February 2016].

¹¹⁰ *Ibid.*



13. The Miniature train at Camp Curry 'Kiddie Kamp' illustrating the family holiday of the Camp, with the associated sounds of the playground Available from:
<<https://yosemitepark.wordpress.com/tag/camp-curry/>>

Like McCauley, Camp Curry used sound to enhance the firefall. A 1910 promotional brochure of the Southern Pacific railroad noted 'an iron railing at the points protects visitors, and from here fireworks are often displayed; coals and torches from bonfires are sent streaming over the rim, blazing stacks saturated with oil are allowed to drift down, while thundering bombs accompany the improvised

pyrotechnics...¹¹¹ During the 1920s, following the death of David Curry, 'Mother' Curry expanded the sonic spectacle by holding firework displays on Half Dome. Camp staff set 'eighty pounds of fireworks to the top and strung them across the face of the dome,' letting them off in a visual, and sonic, 'spectacle.'¹¹² The Curry family, the leading concessionaire in the Valley, engaged in a form of sonic warfare to make all realise that they were the dominant force in the park through loud sounds that made them the primary commercial outlet. Through sound, Camp Curry advertised their business, and claimed the park as their own.

Camp Curry's program of vaudeville, campfire songs and the firefall was designed to attract tourists who wanted 'popular' and affordable entertainment, and essentially the same kind of entertainment sounds in the park as outside it. By contrast, the luxurious Ahwahnee Hotel, built by the Yosemite Park and Curry Co (YPCC) that opened in 1927, sought to attract wealthier clients with its luxurious accommodation, fine restaurant, and more genteel entertainment. These two lodgings demonstrated the difference in tourists' desires and expectations of a 'nature vacation.' Whereas Camp Curry offered more boisterous popular entertainment, the Ahwahnee attracted tourists who sought a quieter environment. Set in different areas of the park, the aural experiences in these two establishments was discernibly different and separated tourists in a place that was supposed to be for the benefit and enjoyment of all the people.

¹¹¹ *The Yosemite, California*, Southern Pacific (Chicago: Poole Bros., 1910).

¹¹² Sanford E. Demars, *The Tourist in Yosemite: 1855 – 1985* (Salt Lake City: University of Utah Press, 1991), p. 69.

Noise has been a class issue since at least the industrial revolution, when the sounds of mechanisation raised the din of city life. In Victorian Britain, the noise of street entertainers, especially the widely disliked organ player, was a particular point of contention between the 'working classes' and 'educated classes.' The Scottish philosopher Thomas Carlyle even constructed a soundproof study in his London home and battled against the street musicians he believed were ruining his life.¹¹³ Distinctions of class that evolved around sound were part of New York City's famed Central Park. The park was designed as a peaceful retreat in the sonic cacophony of the city with bisecting roads sunk into the ground so that the tranquillity was not compromised. The park's entertainment displayed an aural class distinction. Pastimes of the working class like vaudeville, dancing and billiards were strictly prohibited. By contrast the sounds associated with the 'higher classes' classical music, bird watching and walks along the park's tranquil paths were encouraged.¹¹⁴

These sonic class distinctions that applied to Central Park were replicated in Yosemite National Park. In comparison to Camp Curry the entertainment of the Ahwahnee reflected, or at least attempted to, that of a more educated clientele. Christmas celebrations at the hotel tried to mirror its grandeur and the perceived high social standing of the guests through a re-enactment of Washington Irving's *Bracebridge Hall*. The event created an aural environment that was considered suitably aristocratic for Ahwahnee guests. Horns sounded throughout the hotel to announce dinner served to the accompaniment of 'song and merriment' with singing

¹¹³ See John Picker, *Victorian Soundscapes*, Chapter II.

¹¹⁴ See Karen R. Jones and John Wills, *The Invention of the Park: From the Garden of Eden to Disney's Magic Kingdom* (Cambridge: Polity Press, 2005), pp. 48-52.

provided by the 'Ahwahnee Singers' under the musical direction of Ansel Adams.¹¹⁵

Hotel guests gained a sense of the hotel's grandeur and exclusiveness through the sounds heard. Like in Central Park, vaudeville, puppeteers and xylophones were not the order of the day. The music of the Ahwahnee was classical and considered more in keeping with the hotel and its guests.¹¹⁶

Proprietors of the Ahwahnee also strove to achieve a cathedral-like level of quiet at times in the hotel. The hotel was designed and constructed to ensure that all noise was kept to a minimum, which they thought, was more in tune with their guests' requirements. To ensure that the hotel was as quiet as possible acoustic experts was hired. Dr Vern O. Knudsen of the University of Southern California was contracted as an Acoustical Consultant during the hotel's construction stage for the sole purpose of reducing noise in the hotel. Whereas John Muir had located his cabin near to Yosemite Falls so he could hear the roar of cascading water, Knudsen and his associates tried to eliminate all external sound from being heard in the hotel, including the tones of Yosemite Falls. The sounds of nature would have compromised the monastic quiet they tried to achieve.¹¹⁷ However, the awesome roar of Yosemite Falls proved too much of a challenge for Knudsen, his architects and their quest for silence. In an interview given to the *Stockton Record*, Gilbert Stanley Underwood, architect of the \$1,000,000 hotel, stated, 'I am frank to admit that even though we might attempt to eliminate the song of the falls, it is doubtful whether

¹¹⁵ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 4, Subseries 3, Historical Files Box 4, Folder 294, Entertainment 1941 to 1970.

¹¹⁶ Ibid. The Festival of '68 featured the Fresno Philharmonic Orchestra performing Berlioz, Mozart, Holst and Respighi on the South Lawn of the Ahwahnee Hotel, October 1967.

¹¹⁷ YNPA, El Portal, Yosemite National Park, YPCC Series 4, Executive Office Subseries 3, Folder 235, Ahwahnee 50th. Memorandum to Chief, Historic Sites Survey Division, WASO from Chief, Cultural Resource Management, WR 2 August 1977, Ahwahnee 50th Anniversary Celebration Fact Sheet.

such could be arranged, even with the excellent standards of acoustical construction to be found in the Ahwahnee.¹¹⁸ Whilst the ‘anvil bomb’ could outdo the sounds of Yosemite’s waterfalls, they could not be silenced.

Attempts to exclude the sound of Yosemite Falls from the hotel was only one of the measures undertaken to create an isolated sonic space in the Valley. Dr Knudsen tackled the sounds generated by everyday hotel operations to reduce the Ahwhanee’s decibel level. He arranged for the hotel’s elevator shafts to be finished with noise-proof plaster and the lift’s machinery was mounted on a sliding cork slab expressly imported from Spain to ‘eliminate the usual disturbing sounds’ of elevators. Guests who ate in the Ahwahnee’s main dining hall had a quiet experience as the walls were lined with special acoustic material ‘to avoid the usual hum of conversation.’¹¹⁹

The YPCC promoted the distinct sonic qualities of the Ahwahnee in advertisements as a particular reason to stay at the hotel. Potential guests were assured there was ‘no hub-hub’ in the dining hall to disturb them and that in the main hall ‘lush Oriental and Indian rugs’ guaranteed ‘footsteps {were} muffled.’¹²⁰ The noise that came with the construction of the Ahwahnee was partially inflicted on guests at Camp Curry where a sawmill had been constructed to cut timber for the hotel’s grand wooden features. The YPCC presumably thought that the campers were used to noise and would not be disturbed by the screeches of the mill. The 1948 promotional pamphlet for the hotel assured guests that they would enjoy

¹¹⁸ YNPA, El Portal, Yosemite National Park, YPCC Series 4, Executive Office Subseries 3, Folder 235, Ahwahnee 50th. *The Gazette*, 18 June 1926, n.p.

¹¹⁹ Ibid.

¹²⁰ YNPA, El Portal, Yosemite National Park, YPCC Series 4, Executive Office Subseries 3, Folder 244, The Ahwahnee Publications 1948 – 1971. ‘*The Ahwahnee*’ Pamphlet style promotional material, n.d.

seclusion in the 'number of cottages located in quiet groves of pines on the grounds.'¹²¹ Proprietors also tried to ensure that other park users would not disturb the hotel's guests. In an 'out of hearing, out of mind' mentality, guests were comforted to know that 'the roads in the upper end of the Valley have been rerouted to insure quiet and a sense of seclusion.'¹²² The Ahwahnee Hotel demonstrated that in nature, seclusion, quiet and solitude could be bought.

The Ahwahnee's assurance that the hotel was in a tranquil, quiet and secluded area of the national park spoke of a wider environmental issue. The 'mountains of solitude' no longer reigned over a valley 'hushed in sleep' in the 1900s. Expansion of tourist facilities and commercial outlets in Yosemite brought new cultural sounds into the park, especially the Valley where tourist facilities were concentrated. Yosemite, along with other parks in the national park system, increasingly bore the sonic imprint of modern life.

¹²¹ YNPA, El Portal, Yosemite National Park, YPCC Series 4 Executive Office Subseries 3 Folder 244, The Ahwahnee Publications 1948 – 1971, *The Ahwahnee* Yosemite Park and Curry Company (1948).

¹²² Ibid.

Chapter V

From National Parks to Noise Parks

'We hiked the stretch of the Tonto between the Kaibab and Grandview Trails. While the scenery was great and the trail in good condition, we were deeply disturbed by the INCESSANT droning of helicopters and fixed-wing aircraft {...} irreparably altering the wilderness feeling we had travelled so far to experience.' Susan MacLeod to Richard Marks, Superintendent, Grand Canyon National Park, 1982.¹

The post-World War II period brought new challenges to national park soundscapes. The decline in park visitation that had occurred during the war was short lived as tourists flocked to the parks in increasing numbers after hostilities ended. Sierra Club Executive Director David Brower wrote in 1956 of his concern over human noise in Yosemite, which was a direct consequence of increased visitation. The 'crackling of peanuts,' Brower claimed, would 'drown out the opera that can be heard nowhere else.'² A National Park Service Ranger echoed Brower's concern in the 1960s and argued that Yosemite sounded more like Coney Island or

¹ Museum Collection (MC), Grand Canyon National Park (GCNP), GRCA 49267, Air Taxi Complaints 1981-1983, Susan MacLeod to Richard Marks, Superintendent Grand Canyon National Park, 31 March 1982.

² Bancroft Library (BL), University of California (UC), Berkeley, Sierra Club Records, 71/103 Carton 93, Folder 4. David Brower to the Editor, *San Francisco News*, 25 September 1956.

Disneyland than a national park.³ 'The roar of gigantic waterfalls,' the Ranger wrote, 'is drowned out by the roar of motorcycles and hot rods echoing off the cliffs...huge garbage removal machines clang great iron trash cans into their mechanical maws with a hideous sound that is easily heard at Glacier Point 3000 feet above...'⁴ Yosemite's campers were kept awake by partying hippies in the swinging sixties, as prostitution and drug taking made for 'crowded and noisy campgrounds.'⁵

At the Grand Canyon, visitation soared from 37,000 visitors in 1919 (when records began) to over one million in 1956.⁶ The 'Big Cañon' that Joseph Christmas Ives had claimed would be completely ignored became a stopping point on the well-trodden trail of nature tourism.⁷ Eager to consume more of the Grand Canyon and in shorter time, visitors utilised mechanised technologies that allowed them to travel further into the park. However, increased usage of combustion engine machines degraded the natural soundscape. Automobiles, motorised boats and aircraft reduced the multisensory experience of the Grand Canyon primarily to sight and altered visitors' sensory perception of place. Initially human-made noise was concentrated around park visitor centres, car parks and popular lookout points in the early 1900s. But mechanised noise was brought to the Colorado River in the Grand Canyon as outfitters made use of army surplus vessels to float tourists down the river. Increased use of aircraft for scenic tours brought the noise of modernity to

³ Starr Jenkins, 'Down With Yosemite City!' *San Francisco Magazine* (No. 8, August 1965) quoted in Sanford Demars, *The Tourist in Yosemite: 1855-1985* (Salt Lake City, University of Utah Press, 1991), p. 130.

⁴ Ibid.

⁵ Ibid, pp. 130-131.

⁶ See National Park Service Statistics [online]. [cited 20 February 2015]. Available at: <<https://irma.nps.gov/Stats/Reports/Park/GRCA>>.

⁷ Joseph Ives, *Report on the Colorado River of the West: Explored in 1857 and 1858 by Lieutenant Joseph C. Ives*, p. 110.

remote backcountry areas. Here visitors who had tried to escape modern life found their sense of being in a natural space compromised by the drone of aircraft noise.

Yi-Fu Tuan argued in his 1977 work *Space and Place* that peoples' solitude is diminished when in the presence of other humans. He stated that this had the effect of 'curtailing space and its threat of openness,' and that, 'as people appear in space, for everyone a point is reached when the feeling of spaciousness yields to its opposite – crowding...primarily people crowd us; people rather than things are likely to restrict our freedom and deprive us of space.'⁸ Visitors did not have to see people as the noise that they generated made their existence felt. Human presence and human-made noise brought tourists cognitively back to thoughts of modern living, destroying their sense of solitude in places that had previously been branded and sold as aural barriers to modernity. Yosemite and the Grand Canyon lost one of their ephemeral but distinct qualities - undisturbed natural sound - due to the ingress of industrial tourism.

Seeing the national parks

Americans learnt about the national parks through guidebooks, the accounts of travel writers and visual depictions of the landscape. Although readers read about the sounds that could be enjoyed in the parks, books on national parks used visual imagery to portray these areas as natural wonderlands. With the development of photography and the images produced by the likes of Fred Kiser, Carleton Watkins and William Henry Jackson that emerged in the late nineteenth century, the parks

⁸ Tuan, *Space and Place: The Perspective of Experience*, p. 59.

were increasingly promoted primarily as a visual experience. The use of photographs placed natural sounds under threat in the parks as Americans were told what to see, rather than what to experience.

Photographs were used to authenticate claims of strange and wonderful lands in the American West. Geologist and naturalist Frederick Hayden, with funding from the Northern Pacific Railroad baron Jay Cook, took William Henry Jackson to Yellowstone in 1871 to provide 'proof' of the peculiar and weird geysers to a widely suspicious public in the East.⁹ Viewers were captivated by the ability of photographs to depict these wonderlands. William Henry Jackson's stereoscopes of Yellowstone conveyed an appearance of three-dimensionality and a greater sense of realism. These images merged the technological and natural sublime in a celebration of American achievement. Promoters of photographic collections claimed their images provided such a realistic sense of place that actual visits to these wonderlands were unnecessary. James W. Buell argued this in his 1893 photographic collection of iconic landscapes, *America's Wonderland*. 'Travel is no longer necessary for the masses in order to behold the marvels of American scenery' Buell wrote, and 'through the perfection of photography we are now practically enabled to take the world in our hand and examine it with the same convenience that we can an orange.'¹⁰ Buell claimed that simply seeing nature was more than sufficient to enjoy and appreciate these wonderlands. However, there were limitations to experiencing nature solely through sight, whether via photography, from within an automobile or

⁹ Ferdinand V. Hayden, "The Wonders of the West - II: More About The Yellowstone", *Scribner's Monthly*, 3.4 (February 1872), pp. 388-396 (p.388).

¹⁰ James W. Buell, *America's Wonderland: A Pictorial and Descriptive History of Our Country's Scenic Marvels as Delineated by Pen and Camera* (New York: J. Williams, 1893), p. 11.

while sat gazing through the window of an aircraft. Buell's orange metaphor highlighted the restrictions of solely experiencing nature through the visual sense. His readers could not smell, feel, taste or hear the sound of the orange as it was sliced. Sight on its own only offered a limited sense of place.

Not all agreed with Buell's bold claim and argued instead that photography was no substitute for first-hand experience. Geologist and mineralogist James Dwight Dana wrote in 1873 that, 'next to a personal visit to this land of geysers, fountains of boiling mud, waterfalls, lakes and majestic mountains, is a morning spent over these {he referred to Jackson's Yellowstone images} photos.'¹¹ Photographs, Dana argued, were not as good as actually visiting these places. Historian Finis Dunaway claimed that visual culture in the nineteenth century provided Americans with an opportunity to 'glimpse the vast spaces of the West, to contemplate the significance of the frontier, and to ponder their relationship to the natural world.'¹² Dunaway was certainly correct when he described images as a 'glimpse,' as they were mere snapshots of distant places frozen in time. Images provided viewers with a perception of place rather than a real sense of place as they were unable to feel the cold, smell wildflowers, taste nature's bounty or listen to natural sounds. They failed to provide holistic understanding of place as sensory experiences beyond the visual could only be imagined. Images made viewers cognize nature through the eye and gave them an Emersonian sense of being apart from nature, distant viewers as opposed to active participants.

¹¹ James Dwight Dana, "Photographs of the Hot Springs, Geysers and Scenery in the Region of the Yellowstone National Park", *American Journal of Science and The Arts*, 5.25 (1873), pp. 79-80 in Richard Grusin, 'Representing Yellowstone: Photography, Loss, and Fidelity to Nature' *Configurations*, 3.3 (1995), 415-436.

¹² Dunaway, *Natural Visions: The Power of Images in American Environmental Reform*, pp. xvi-xvii.

Movie theatregoers were transported to the Grand Canyon through the 1917 movie, *A Modern Musketeer*, which starred Douglas Fairbanks.¹³ However, the movie's grainy black and white images only provided a rudimentary visual sense of place and no knowledge of the Canyon's aural qualities. The Grand Canyon featured in another silent movie, *Sky High* starring Tom Mix, which was released in 1922.¹⁴ The production, essentially a western that substituted a horse for an airplane, featured exhilarating stunts and merged the developing technology of flight with the primordial landscape of the Canyon.¹⁵ Yet, despite portraying the visually spectacular landscape, the movie did not provide a sense of what it was like to experience the place first-hand. A screen caption told viewers that events unfolded 'in the peaceful silence of the canyon,' yet there was no actual sense of the Canyon's sonic identity and moviegoers had to imagine the 'silence.' Paradoxically, to have an impression of 'silence' it was necessary to have sound. The only sounds that the audience heard were the musical accompaniment and the shuffling, coughing and chatter of their fellow patrons.¹⁶

The emergence of railroads as a means of transportation to the parks continued to redefine the meaning of these places as visual experiences. They were also an assault on natural soundscapes. The Northern Pacific Railroad actively promoted travel to Yellowstone National Park, and the Atchison, Topeka, and Santa

¹³ *A Modern Musketeer* (1917), Dir. Allan Dwan, Douglas Fairbanks Pictures.

¹⁴ *Sky High*, 1922, Dir. Lynn Reynolds, Fox Film Corporation.

¹⁵ Michael Paris argued the filmmakers used aviation to 'rejuvenate old themes' and that the airplane replaced the horse in westerns. See Michael Paris, *From the Wright Brothers to Top Gun: Aviation, Nationalism and Popular Cinema* (Manchester: University of Manchester Press, 1995), p. 55.

¹⁶ How silent movies were in this period is debatable. Though there was not any direct sound, there was often musical accompaniment. To what extent though is debated, Rick Altman argued that some silent movies had no sonic accompaniment. See, Rick Altman, 'The Silence of the Silents', *The Musical Quarterly*, 80.4 (Winter 1996), pp. 648-718.

Fe Railroad, in partnership with the Fred Harvey Company, developed and promoted tourism at the Grand Canyon.¹⁷ Railroad companies endorsed the country's natural spaces as primarily a visual experience through their 'See America First' campaign.¹⁸ Encased within railroad carriages travellers' opportunity to hear natural sounds was diminished. As Phil Macnaghten and John Urry argued, due to railroad travel, nature was subdued to an aesthetic of 'swiftly passing countryside,' which combined with guidebooks, travel maps, and postcards led to an 'increasing visual objectification of an external and consumable nature.'¹⁹ Visual imagery gave legitimacy and value, Macnaghten and Urry claimed, but reduced the 'complex multi-sensual experience,' through 'control and mastery over both nature and society.'²⁰ Landscapes viewed from the seat of a railroad carriage were as silent as the movies of the period.

The monopoly of railroad companies over tourist transportation was short-lived as Americans embraced the automobile from the early 1900s, and again, the visual sense dominated. The National Park Service from its foundation in 1916 directed policy that forwarded automobiles as the primary platform from which to consume parks. Under Stephen Mather's leadership the agency embraced automobiles as a democratizer of nature tourism and constructed roads to facilitate greater access. Auto-camping and motor touring were amongst the most popular outdoors recreational pursuits during the interwar period.²¹ However, automobiles produced a further change in how tourists experienced nature. Railroads had

¹⁷ For a detailed account of the promotion of national parks by railroad companies see Marguerite Shaffer, *See American First: Tourism and National Identity, 1880-1940*.

¹⁸ Marguerite Shaffer, "'See America First': Re-Envisioning Nation and Region through Western Tourism', *Pacific Historical Review*, 65.4, 559-581.

¹⁹ Phil Macnaghten & John Urry, *Contested Natures* (London: Sage, 1997), p. 113.

²⁰ *Ibid.*

²¹ Paul Sutter, *Driven Wild: How the Fight Against Automobiles Launched the Modern Wilderness Movement*, pp. 30-32.

provided travellers a technology to get to the parks, not a platform from which to consume them. Tourists from this time increasingly experienced national parks while cocooned in automobiles that rolled along scenic highways. Within automobiles their park experience was largely reduced to a sightseeing tour. Due to the noise generated by the vehicle's engine, opportunity to hear natural sounds was reduced. Historian David Louter noted this shift and argued that 'when the automobile first appeared in national parks {...} it changed the way most Americans would encounter these protected areas. Throughout the twentieth-century people would interpret parks from a road and through a windshield.'²²

Scenic roads were designed to give tourists a particular park experience that enforced the power of the image. Although automobiles have been perceived as extending personal freedom, park planners dictated and controlled tourists' experiences. Confined to automobiles visitors consumed the parks through landscape architects' visions and values. Lookout points determined where automobile tourists would stop and view vistas and this discouraged exploration beyond the road's verges. These vista spots advanced the idea that nature was predominantly a visual experience. Tourists guided by park road maps hopped between lookout points on the scheduled route of a visual park experience. As Louter argued, scenic roads 'organised the park tour, the natural scenes and wonders, that visitors would see.'²³ Scenic highways only offered a vignette of the park, a picture postcard experience of nature, a first-hand experience of images previously seen and imagined.

²² Louter, *Windshield Wilderness: Cars, Roads, and Nature in Washington's National Parks*, p. 14.

²³ *Ibid*, p. 15.

NPS administrators tried to visually blend highways into park landscapes but were largely unconcerned about how roads affected tourists' other sensory experiences. Stephen Mather, Horace Albright and the founding leaders of the NPS interpreted the Organic Act of 1916 primarily through the visual sense. They employed landscape architects who 'cared more about how nature appeared to the eye than they did about what they knew (and could not easily) see of a road's effects on natural systems.'²⁴ Emphasis on aesthetics guided policy makers in the construction of park buildings. The 'rustic style' that dominated early national park architecture was concerned with how buildings blended into the landscape. Architects tried to make buildings unobtrusive and conform to popular notions of how park buildings should appear. Historian Ethan Carr argued that for many visitors these buildings were a 'welcome and even necessary aspect of the aesthetic enjoyment of park scenery.'²⁵ The Park Service's commitment to the visual experience was part of Mission 66, its program to update and 'improve' the national park system fifty years after its establishment. Mission 66 focused on moving cars more efficiently through parks, provision of more roadside overlooks, low speed automobile trails and increased car park capacity.²⁶

While automobiles confined tourists to roads, aircraft offered greater sightseeing opportunities. Unrestricted to existing infrastructure, flying provided a sense of freedom and the opportunity to explore areas previously considered inaccessible without a challenging trip into the backcountry. Aircraft offered a

²⁴ Ibid, pp. 59-60.

²⁵ Ethan Carr, *Mission 66: Modernism and the National Park Dilemma* (Amherst: University of Massachusetts Press, 2007), p. 135.

²⁶ Ibid, p. 128.

platform from which vast swathes of the parks could be seen at once. Like automobiles and trains, aircraft restricted the park experience to the visual sense. Nature was framed through a screen, albeit from a different perspective, but still through a windshield. Boosters promoted their method of transportation as the perfect platform from which to see the national parks. Advertisements tried to convince tourists that seeing was the complete park experience. Scenic air tour operators promoted trips through images of aircraft set against the Grand Canyon landscape. Aircraft appeared small and insignificant set against the backdrop of the Canyon, visually non-threatening to the place's majestic and sublime appearance. Though aircraft appeared visually inconsequential, the noise of these machines spread throughout the park. Aircraft damaged natural soundscapes and brought the sound of human activity to remote park areas.

The creation of a noise park

The Grand Canyon soundscape, like Yosemite's, displayed the sonic imprint of tourism by the beginning of the twentieth century. The sounds of 'silence' were overlaid with the noise of tourism as Euro-American cultural sounds were increasingly heard. Complaints over human-made noise predictably started to emerge during this time. The first recorded account of unwanted noise occurred in 1916 due to the use of megaphones by company representatives who met tourists disembarking from the train at the South Rim. Pedlars who had angered urban dwellers promoting their wares incurred the displeasure of tourists at the Grand Canyon. An article in the *Saturday Evening Post* in 1916, titled 'Ballyhooing in the Temple', complained that hawkers for rival bus companies woke travellers by

‘bawling through megaphones’ and that their ‘raucous chorus’ was travellers’ first ‘introduction to the greatest wonder nature {had} wrought on this continent.’²⁷

Don P. Johnston and Aldo Leopold of the U.S. Forest Service, in an early effort to control noise pollution at the Canyon, commanded businesses in 1916 that solicited customers to do so in a quietly manner. Solicitations, Johnston and Leopold ordered, had to be ‘conducted in a quiet and orderly manner without the use of megaphone or other instrument of noise and {be} free from riotous or boisterous conduct.’ Niles and Bert Cameron fell afoul of the order and were reprimanded for using a megaphone to promote their livery business outside of John Verkamp’s store. The Kolb brothers, who ran a photographic studio, were only granted permission to ‘solicit photographic trade and patronage for a lecture and moving picture show’ if they conducted themselves in a quiet manner.²⁸ The Grand Canyon was not, administrators argued, a place for unwanted noise that disrupted the fragile tranquillity.

However, apart from the remarks made about hawkers, noise complaints were scarce. With relatively few tourists, visitors were easily able to locate areas of quiet in the Grand Canyon during the early twentieth century.²⁹ Initially tourists had arrived at the Grand Canyon by stagecoach. Historian Todd R. Berger noted that visitors often found the journey arduous and arrived ‘sore-bottomed at the end of a

²⁷ ‘Ballyhooing in the Temple’ *Saturday Evening Post*, 4 November 1916, p. 24.

²⁸ Don P. Johnson and Aldo Leopold, *The Grand Canyon Working Plan, Uses, Information, Recreational Development*, 1917.

²⁹ When the Grand Canyon became a national park in 1919, visitation was recorded as 37,745. See National Park Service Statistics [online]. [cited 20 February 2015]. Available at: <<https://irma.nps.gov/Stats/Reports/Park/GRCA>>.

long stagecoach, wagon, or horse ride.³⁰ When the Grand Canyon railroad was constructed in 1901 the stagecoach became obsolete. The train was quicker, more comfortable and the Grand Canyon terminal was conveniently located virtually at the edge of the South Rim. Standing on the edge of the abyss, visitors considered the Grand Canyon so vast that they were unable to imagine how human-made noise could threaten the great depths of quiet. But, the railroad brought the noise of mechanisation directly into the Canyon. The steam train's whistle and the screech of its wheels added the noise of the industrial age to the park's soundscape.³¹ Though railroad sounds reached at least to the rim, as the current vintage steam locomotive operated by the Grand Canyon Railway does, tourists did not complain about the noise.³² Even John Muir, known for his intolerance of human-made noise in natural areas, considered the train as 'disturbing as the hooting of an owl in the lonely woods.'³³ But the train was just an overture to the march of mechanised noise that started to transform the Grand Canyon's sonic identity.

A two-tier sonic tourist experience emerged as tourists who ventured below the rim and into the backcountry mostly escaped human-made noise, while at the rim trains and the bustle of tourists affected the park's 'silence.' However, the

³⁰ Todd R. Berger, *It Happened at Grand Canyon* (Guilford: Rowman & Littlefield, 2016), p. 45.

³¹ It is possible to imagine the sounds made by these steam locomotives as the Grand Canyon Railway still operates steam trains from the period on certain occasions. Currently the company has two steam locomotives, the oldest of the two was built in by the American Locomotive Company, Lima, Ohio in 1906 <<https://www.thetrain.com/>> [accessed 20 February 2018].

³¹ The current diesel locomotive that used a modern horn can be clearly heard (by my own experience in 2016) at Indian Gardens, beneath the rim on the Bright Angel Trail. The Herbert's footage of tourists on the Bright Angel Trail also revealed the sonic presence of the Grand Canyon Railway's steam locomotive and that it was clearly heard at the South Rim.

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³³ Muir, *Steep Trails*, p. 1000.

greatest threat to the Canyon's distinct soundscape emerged from the skies above. Aircraft noise radically began to alter the soundscape. Commercial airliners, military aircraft and scenic air tours brought the noise of machines into remote wilderness and backcountry areas. Noise pollution permeated the inner gorge and side canyons, locations which travellers had ventured to in the hope and belief that the sonic markers of modern life would be absent.

The history of aviation at the Grand Canyon coincided with its history as a national park.³⁴ On 24 February 1919 a Lincoln Standard aircraft, one of three that had set out from Ellington Field in Houston and flown west over the Southern states, became the first aircraft to fly over Grand Canyon National Monument. The following day a second Standard became the first to fly within the canyon, (flying some 2,000 feet beneath the rim); on 26 February, the day that the Canyon was inaugurated as a national park, a third Standard piloted by Eric Nelson flew over Grand Canyon National Park.³⁵ Unbeknown to these aviators, flying at the Canyon would become the most contentious of all the park's issues.

This controversy set conservationists against businesses over what exactly, for the 'benefit and enjoyment of the people' as stated in the 1916 Organic Act, actually meant. Initially aircraft were considered a novelty, the presence of which tourists greeted with rapturous enthusiasm.³⁶ In 1922 Ellsworth Kolb arranged for

³⁴ J. Donald Hughes wrote that the first aircraft flew over Grand Canyon in June 1921 and was piloted by Alexander Pearson if the United States Army Air Service, see J. Donald Hughes, 'The Story of Man at Grand Canyon', *Grand Canyon Natural History Association Bulletin*, #14, (1967), p. 160. All others authors have stated that the Lincoln Standards were the first flights over Grand Canyon in 1919.

³⁵ Nancy Green, 'Grand Canyon Aviation History' *Grand Canyon Pioneers Society – The Bulletin* (Vol. 6, No. 10 October 2010).

³⁶ MC, GCNP, GRCCA 102696, Folder 12, Overflight Administration Record Dates 1974-2010, Phase II, Kevin Roache, 'History of Aviation at Grand Canyon National Park and Examination of Wilderness

the barnstorming pilot, Commander Royal V. Thomas of the British Royal Flying Corps, to land an aircraft beneath the rim. On 8 August, Thomas, with Kolb on board, flew over the El Tovar Hotel where crowds lined the South Rim waving, shouting and cheering as they watched the plane come to a successful landing on Plateau Point.³⁷ A. Gaylord of the *Kansas City Star* reported the feat in the *Literary Digest*, and noted the plane's motor that ticked 'as steadily as a clock' and then its sudden roar as Thomas brought the machine out of its descent down into the inner canyon.³⁸ Ten days later, Thomas' feat was re-enacted and filmed by Fox and shown in movie theatres across the nation, revealing jointly the marvels of the Canyon and aircraft flight to theatregoers.³⁹

Value in the Light of Continued Development by Aviation Industry' (Spring 1981). Unpublished (undergraduate) thesis, place unknown. Claimed that the first aircraft to fly over and into the Canyon was a deHaviland Bomber, flown by Lieutenants R. O. Searle and R. D. Jones. The date is the same, 24 February 1919.

³⁷ Plateau Point is within the canyon, accessed via the Bright Angel Trail.

³⁸ A. Gaylord, 'Into the Grand Canyon, and Out Again, by Airplane', *Literary Digest*, 7 October 1922, pp. 63-66 (p. 64).

³⁹ William C. Suran, 'The First Flight in the Grand Canyon', *The Grand Canyon Pioneers Society Newsletter*, (November 1992).



14. Photograph of R. V. Thomas and Ellsworth Kolb (holding camera) posing next to the plane that landed beneath the rim on 8 August 1922.⁴⁰

Tourists who viewed the Grand Canyon from aircraft in the 1920s were offered a different, exciting and distinctly modern perspective on the landscape. This reflected a broader national trend. City planners embraced aircraft and took an innovative approach to visualising cities through pioneering urban aerial photography in the 1920s. In 1924 New York City officials used aircraft to photograph the city and produce a sectional map that revealed the scale of the rapidly expanding metropolis.⁴¹ Historian Teresa Castro argued that new cinematographic images from above occurred at a time ‘when the exaltation of the

⁴⁰ R. V. Thomas and Ellsworth Kolb, Grand Canyon 8 August 1922. Unknown photographer, available from:

<<http://www.loc.gov/pictures/resource/cph.3a35361/>> [accessed 1 August 2017].

⁴¹ Nathalie Roseau, ‘The City Seen from the Aeroplane: Distorted Reflections and Urban Futures’, in *Seeing from Above: The Aerial View in Visual Culture*, ed. by Mark Dorrian and Frederic Pousin (New York: L. B. Tauris & Co., 2013), pp. 210-226.

values of modernity and praise for mechanisation were growing.’ The ‘aerial movement cinema found a powerful source of fantasy’ she added, ‘as if the world’s ultimate “cine-sensation” was that of taking to the skies.’⁴² Artists embraced the perspective of looking down on cityscapes and these images offered an unusual and intriguing perspective of the city. Art historian Nathalie Roseau argued that these offered ‘broader overviews, foreshortened distances; widening frames of perspective’ and that ‘aerial understanding of the world contributed to the creation of a new space of vision.’⁴³ Alvin Langdon Coburn pioneered photographic aerial views. His 1909 image *The Octopus*, redefined New York City’s Madison Square as an abstract design and celebration of the emerging skyscraper cityscape.⁴⁴ Coburn took his interest in aerial perspectives to the Grand Canyon in 1919, where his images exposed the Canyon’s vast dimensions. His photographs taken from the rim offered a similar perspective of the landscape to those he took of urban areas. Coburn merged the image of the urban and natural landscape together in an exhibition he held in Britain where his Grand Canyon images were displayed alongside his ‘vertiginous images of the “canyons” of Lower Manhattan.’⁴⁵ The soaring walls of American capitalism were celebrated alongside the deep abyss of the Grand Canyon.

Just as aerial images of cities caught the public imagination, the prospect of seeing the Grand Canyon from an aircraft intrigued tourists. In the 1920s aviation

⁴² Teresa Castro, ‘Aerial Views and Cinematism. 1898-1939’, pp. 118-133 in *Seeing from Above: The Aerial View in Visual Culture*, ed. by Mark Dorrian and Frederic Pousin (New York: L. B. Tauris & Co., 2013), pp. 125-126.

⁴³ Nathalie Roseau, ‘The City Seen from the Aeroplane: Distorted Reflections and Urban Futures’, in *Seeing from Above: The Aerial View in Visual Culture*, ed. by Mark Dorrian and Frederic Pousin (New York: L. B. Tauris & Co., 2013), pp. 210-226 (p. 213).

⁴⁴ Alvin Langdon Coburn, *The Octopus*, 1909, Museum of Modern Art, New York City.

⁴⁵ Jordan Bear, ‘Venturing Out on a Ledge to Get a Certain Picture: The “authentic” spaces of Alvin Langdon Coburn’s Grand Canyon’, *Photographies*, 5.1 (March 2012), 51-70 (p. 67).

was considered a new and exciting technology. The first flight by the Wright Brothers had occurred in 1903, only sixteen years before the Lincoln Standards had flown over the Canyon. Historian David Nye argued that during the period Americans considered flying the 'acme of human achievement {and the} fulfilment of a centuries-old dream.'⁴⁶ Flying over the Grand Canyon offered tourists a view of an ancient landscape from a modern invention. Pilots exploited the potential economic benefits of scenic air tours. J. Parker Van Zandt, a former World War I U.S. Army pilot and entrepreneur, conducted the first air tours over the park. He constructed an airstrip in 1927 at Red Butte, located in the Kaibab Forest to the south of the Canyon, and operating under the company name Scenic Airways flew tourists over the park. Initially he envisaged that his flying operations would consist primarily of carrying mail.⁴⁷ Yet a 1929 article in *American Forests* revealed that Van Zandt's air tours were conducted daily (during the tourist season) and that in 1928 'several thousand passengers' used his scenic air tour business.⁴⁸ From the outset there was a significant amount of public interest in aerial tours.

Technological advances led to increasingly powerful aircraft with greater seating capacity that made air tour businesses more economically viable. By 1928 Scenic Airways were operating AT-4 and AT-5 Tri-Motors built by the Ford Motor Company that carried up to fourteen passengers. However, Van Zandt's fledgling air tour business was vulnerable to economic conditions and it succumbed to the Great Depression around 1930. Undeterred by the faltering economy, a group headed by

⁴⁶ David Nye, *American Technological Sublime* (Cambridge, MIT Press, 1994), p. 201.

⁴⁷ 'Van Zandt Heads Scenic Airways, Inc.', *U.S. Air Services*, (January 1928), p. 48.

⁴⁸ MC, GCNP, GRCA 94948, Folder 2, Grand Canyon Overflight Administrative Record. A. E. Demary, 'High Sea of the Parks: Shall Airplanes be Given a Place in the National Parks', *American Forests* (August 1929), p. 517.

Jack Thornburg reopened Red Butte in the summer of 1931, and operating as Grand Canyon Air Lines flew a three-engine Bach & Curtiss Robin aircraft.⁴⁹

Aircraft offered tourists a new, exhilarating, and less arduous platform to explore the Grand Canyon from. Newsreel footage shot for Fox Movietone by Lucille and Charles Herbert in 1929 from the open door of a Scenic Airways Ford Tri-motor provided a sense of air tourists' experiences. Jennifer Jenkins argued that the Herbert's film 'brought the enormity of the canyon into frame and contained it for consumption by viewers on site and in the air.'⁵⁰ The Herbert's also included real sound in their pioneering cinematic work. The film showed a Scenic Airways Tri-Motor taking off and landing and a sense of the three-engine aircraft's sonic imprint. Some of the aerial shots had sound and demonstrated the high level of noise experienced by those in the plane.

Air tours provided access to remote parts of the canyon and a new perspective. Although tourists could see sweeping vistas from the rim, aircraft provided a greater field of vision. Early commercial airlines exploited the opportunity to show their customers the Canyon. Pilots rerouted scheduled flights to offer passengers a view of the iconic abyss. Arthur. E. Demary, who became the NPS director, described taking a transcontinental flight in 1929 that detoured over the Grand Canyon. For Demary, the views from above were a memorable and delightful experience. He noted seeing the Hermit Rim Road, Bright Angel Trail, buildings on the South Rim, Phantom Ranch and 'all the buttes and temples in the

⁴⁹ See, Paul Freeman 'Abandoned and Little-Known Airfields: Northern Arizona', December 2016. Available from: <http://www.airfields-freeman.com/AZ/Airfields_AZ_N.htm> [accessed 11 July 2017]. By 1966 Red Butte airport was closed.

⁵⁰ Jennifer Jenkins, *Celluloid Pueblo: Western Way Films and the Invention of the Post-war Southwest* (Tucson: University of Arizona Press, 2016), p. 49.

gorgeous colouring.’⁵¹ For tourists and travellers, seeing the Grand Canyon from the vantage point of an aircraft was met with great enthusiasm.

Interest in flying over national parks went beyond the Grand Canyon. In 1919 Raymond L. Crozier of Curtiss Aeroplanes argued that aircraft offered a unique opportunity to see Yosemite. He added that flying provided access to remote areas of the park that could not be matched by other methods of transportation. Crozier highlighted the opportunity to traverse large areas of the park by aircraft and argued he could provide tourists with ‘a view of more scenery in half an hour than they could see by automobile in several days.’⁵² Other aviators were keen to cash in on what they believed was a potentially lucrative business. W. Friesley of Friesley Aircraft Corporation requested permission in 1919 for a ‘passenger-carrying concession’ to fly tourists on tours around Yosemite.⁵³

Flying in the parks at this time was often a dangerous undertaking with accidents a common occurrence. However, accidents were brushed aside as part of the challenge of flying. The Standard Oil Company’s airfield guidebook reported that conditions at Yosemite were particularly problematic and warned pilots the landing strip was surrounded by many trees, high mountains and hazardous air currents. The guidebook bluntly concluded that it was a ‘very dangerous’ airfield to land at.⁵⁴

⁵¹ A. E. Demary, ‘High Sea of the Parks: Shall Airplanes be Given a Place in the National Parks’, p. 517.

⁵² YNPA, El Portal, Yosemite National Park, El Portal, NPS Yosemite Old Central Files, Series II Box 012: Folder 0093, 208-42 Aviation Regulations: Airplanes General, 1919-1953. Raymond L. Crozier, Glenwood Mission Inn, Riverside California to Superintendent Lewis, 29 September 1919.

⁵³ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093, Arno Cammerer, Acting Director National Park Service to H. W. Friesley, Friesley Aircraft Corporation, San Francisco, 26 December 1919.

⁵⁴ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093, Harper, Director Sales Manager, Standard Oil Company to Office of Park Superintendent, 25 October 1927.

Crozier suffered a crash landing in Yosemite in 1919, but dismissed it as merely a 'little accident, or rather disastrous experiment.'⁵⁵ In 1924 the aviator Lou Hyman managed to successfully land his airplane in Yosemite, but crashed into a tree when he attempted to take off. His machine was so completely wrecked that it was sent back to San Francisco in a crate. Unperturbed he sought permission to try again in 1926.⁵⁶

Despite numerous accidents there was a steady flow of requests for permission to land in national parks and to conduct air tours. Ernest. P. Leavitt, Acting Superintendent of Yosemite National Park wrote to NPS Director Mather in 1928 of the 'great interest California is taking in aeronautics' and that he suspected before long 'planes will be flying over the park on sightseeing tours.'⁵⁷ The NPS were nonetheless unsure of what to do about aircraft. Leavitt wrote of his uncertainty, but concluded that the agency would have to deal with airplanes at some point as a form of transportation, 'if not to the parks, at least over the parks.'⁵⁸ Horace Albright the Assistant Director of the Park Service noted his unease over aircraft flying over the parks. He stated in 1928 that he did not 'know what to make of all these airplane ideas.'⁵⁹

⁵⁵ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093, Raymond L. Crozier, Glenwood Mission Inn, Riverside California to Superintendent Lewis, El Portal, Yosemite National Park.

⁵⁶ YNPA, El Portal, Yosemite National Park, Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. Lou H. Hymans to W. B. Lewis, Superintendent Yosemite National Park, 3 May 1926, NPS Yosemite.

⁵⁷ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. Ernest. P. Leavitt, Acting Superintendent to the Director NPS, Washington D.C., 28 August 1928.

⁵⁸ Ibid.

⁵⁹ YNPA, El Portal, Yosemite National Park, Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. Horace Albright, Assistant Director to Don Tressider, President YPCC, 25 June 1928, NPS Yosemite.

While NPS Director Stephen Mather keenly promoted automobiles, he was against flying over national parks. He thought that the noise that came with aircraft lessened the park experience. Deputy NPS director Horace Albright stated that Mather, 'went against the use of airplanes over the parks {and} didn't want the noise, wanted to keep the parks silent and pristine – the way they were when the Indians came.'⁶⁰ Albright noted his own disapproval of aircraft. He recalled how he had ejected an operator who had tried to conduct an air tour business over Yellowstone National Park when he was the superintendent in the 1920s. Albright argued that he did not 'want planes flying out of the park.'⁶¹ There were concerns over aircraft safety, but from the outset administrators had reservations that related to aircraft noise and the negative effects on park soundscapes.

Widespread concern existed due to aircraft flying over and landing in national parks. Arthur Demary argued that airstrips should only be built where they would 'cause no scar on the landscape' and added that 'random flying {be} prohibited as a measure of public safety.' Though his writings make it unclear whether he was concerned over the sonic impact of aircraft, he wrote that in any deliberations 'it should be kept continuously in mind that National Parks are to be conserved unimpaired for the benefit and enjoyment of future generations as well as our own.'⁶² Secretary of the Interior Harold Ickes expressed his concern over aircraft operations in an address he gave to the National Park Service's Superintendent's

⁶⁰ Comment 580, Project 28052, Document 38849, Special Flight Rules in the Vicinity of Grand Canyon National Park, submitted 8 June 2011, by Don Lago, re: interview by Grand Canyon National Park Ranger, Julie Russell, doing a series of interviews for the Park's archives, quoted in Dickson J. Hingson, 'Natural Quiet Resource Mismanagement (Overflight Noise) At Grand Canyon National Park: The Reagan Torpedo, 1986-1987', 251-257 (pp. 254-255).

⁶¹ *Ibid*, (p. 252).

⁶² A. E. Demary, 'High Sea of the Parks: Shall Airplanes be Given a Place in the National Parks', p. 517.

Conference in February 1936. Ickes argued that aircraft represented a sonic intrusion, made national parks resemble theme parks and questioned what sort of park experience tourists could have from an aircraft. 'I do not want a Coney Island', Ickes stated, and that if it were 'too easy for airplanes to go whizzing over' the parks it would 'destroy a great deal of their value.' He added that he could not endorse aircraft usage because 'if we encourage the airplane business, we will see {the parks} from the air at a hundred miles an hour.' 'I don't see any sense in catering to that sort of thing' he added.⁶³

Growing uncertainty over aircraft flying at the national parks rapidly transformed into frustration. An increase in flights over the park system during the 1940s made NPS leaders progressively more concerned. During World War II these concerns were directed towards military aviators, in what became a long point of contention over the use of airspace above parks between NPS administrators and military leaders. Yosemite National Park Superintendent Frank Kittredge expressed his discontentment in 1945 to the Commandant of the Twelfth Naval District over a Hellcat Navy Fighter that just cleared the tops of trees and buildings. Kittredge argued that the noise and sudden appearance of fighter aircraft could cause 'horses and mules to stampede.'⁶⁴ During World War II the U.S. Navy commandeered the luxurious Ahwahnee Hotel in Yosemite, believing that the park's tranquillity would provide effective recuperation for injured personnel. Yet adventurous military

⁶³ Denver Public Library (DPL), Denver, NPCA Box 78, Folder 10, Brownridge Evidence, National Parks Conservation Association, Series 3, Administration, Quoted in 'The Importance of Natural Quiet in the Grand Canyon: Excerpts from the Grand Canyon Literature'.

⁶⁴ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. Frank Kittredge, Superintendent Yosemite National Park to The Commandant, Twelfth Naval District, San Francisco, California, 23 May 1945.

aviators performed low-level flights through the park. This led to Colonel Engel of the General Staff Corps expressing his concern over noise that he felt could have potentially disrupted wounded servicemen's recovery. Engel also noted that the noise of aircraft could be disruptive to park animals and that they might be 'frightened by the noise and bolt.'⁶⁵

In 1947 the NPS issued a statement that outlined the agency's policy in regard to the landing of aircraft. Director Newton B. Drury revealed that the NPS had been under a 'great deal of pressure' from aviation groups 'to enter upon a program of establishing airplane landing facilities in the areas in the National Park System.'⁶⁶ Drury stated the potential issues that airstrips could have on the visual appearance of parks, along with the 'extensive modifications' that would be needed. Alongside these thoughts, Drury noted his concern over the sonic impact of aircraft in national parks. He argued that 'the airplane is noisy and that flights over the parks at low altitudes or landings in the parks would disturb the peace and quiet which is one of the forms of relief sought by many visitors.'⁶⁷ This demonstrated that the ability to hear natural sounds undisturbed was considered by the NPS a primary reason for why tourists visited the national parks. However, he added that the NPS did not 'preclude flights over the parks and monuments at such altitudes as would minimise the disturbance caused by the noise or airplanes, since it recognizes that such flights can often provide spectacular views of park areas and their character not

⁶⁵ YNPA, El Portal, Yosemite National Park, NPS Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. Colonel Howard E. Engler, General Staff Corps, Chief of Staff to Commander, Main Base and 412th Fighter Group, Fourth Air Force, 11 July 1945.

⁶⁶ YNPA, El Portal, Yosemite National Park, Yosemite Old Central Files Collection: 1851-1994: El Portal, Series II Box 012: Folder 0093. 'Statement on Service's Policy Concerning Landing of Aircraft in National Parks and Monuments: US Department of Interior, National Park Service, 20 May 1947, Newton B. Drury, Director' NPS.

⁶⁷ Ibid.

obtainable otherwise.’ Drury offered a mixed message. He thought that aircraft could fly over parks, but not at the expense of those who wanted to enjoy natural sounds.

The Grand Canyon provided the biggest draw for air tourists, despite the interest that had been shown for flying in Yosemite. Tourists continued to consider air tours over the Grand Canyon in the post-war years exciting and glamorous. American Airlines offered a sixty-minute round-trip from Phoenix to the Grand Canyon on Sundays in April 1966, which the airline marketed as ‘weekly joy rides’. Children could take the trip for \$7.50 in ‘bubble gum class’ and adults who wished to join the jet set paid \$10 to sit in first-class and drink champagne. Captain L. F. Klasmeier described how he piloted the four-engine 707 Astrojet down to 1000 feet above the rim, from where passengers could see the ‘true beauty’ of the Canyon as they ‘oohed and aahed from {the} window seats {...} each trip is a ball’ Klasmeier added.⁶⁸ Brook Payne, the airlines sales manager, claimed that the trip was not just about seeing the monumental landscape, but the excitement of flying in a jet plane as well. ‘This will be an exciting opportunity to see one of the Seven Wonders of the World’, Payne stated, ‘as well as a chance for many to experience the wonders of jet travel.’⁶⁹ American Airlines, by their own admission, reduced the Grand Canyon experience to an hour-long joyride that brought the roar of jet engines into the park. The airline seemed unconcerned, or at best unaware, of the potential effect the four-engine plane could have on ground visitors.

⁶⁸ ‘MC, GCNP, GRCA 75813, Folder 1; Airplanes in GC, Brochures, Adverts, Postcards. ‘Grand Canyon Flights Fun’, *Arizona Republic*, 20 March 1966 (n.p.).

⁶⁹ MC, GCNP, GRCA 75813, Folder 1. ‘American Airlines Announce a Jet Flight Over the Grand Canyon for \$7.50’, *Arizona Republic*, 8 August 1965 (n.p.).

Air tour companies framed the opportunity to see the Grand Canyon as an exhilarating aerial experience. Operators argued that flying beneath the rim represented an opportunity to turn a visit to the Grand Canyon into a joyride through nature. An article in *Arizona Days and Ways Magazine* in 1966 gave an insight into the thrills air tourists experienced as their planned dropped down into the abyss. The author wrote that ‘no one is ever quiet prepared for the way the bottom drops out of the world,’ as Henry Hudgin, who piloted the Grand Canyon Airlines Cherokee, smiled at the ‘delighted shrieks’ of his passengers.⁷⁰ Secretary Ickes remark that air tours could make the parks resemble Coney Island or Disneyland seemed prophetic. The article also argued that air tours made experiencing the Canyon less arduous. The reporter wrote of seeing hikers on the Kaibab Bridge near Phantom Ranch and smugly remarked that it ‘would take them half a day to climb from the bottom to the top.’ Visitors, he wrote, gazed from overlooks and a ‘few hike(d) or rode muleback (sic) down the trails, but to see close up where the ages of the earth are exposed is almost as difficult as ever, except of course for those who arrive by plane.’⁷¹ Air tour boosters argued that hiking or riding down into the Canyon was a wasted and arduous exercise, as aircraft made these activities redundant. But hiking trails offered tourists a multisensory experience that included listening to natural sounds, at least when not drowned out by aircraft noise. Air tour boosters framed the Grand Canyon as a visual experience and their flights eliminated passengers’ ability to hear the park’s aural qualities.

⁷⁰ MC, GCNP, GRCA 75813, Folder 1. ‘The Flight Down into Grand Canyon’, *Arizona Days and Ways Magazine*, 1 May 1966 (NP).

⁷¹ Ibid.

The effect of Grand Canyon National Park Airport

In 1957 the writer and naturalist Joseph Wood Krutch released his book, *Grand Canyon: Today and All its Yesterdays*. In the chapter titled 'Where solitude is easy to find', Krutch wrote of his concern over changes to the Grand Canyon that had occurred due to human activity. He noted that roads, hotels and administrative buildings had been built and that these structures had redefined the park's visual appearance. He also remarked that he occasionally heard 'an airplane hurtling across the continent' as it passed overhead.⁷² Krutch wrote before aircraft noise had become a significant issue in the Canyon, but he noted the plane crash over the Canyon in 1956 between two commercial airlines and questioned for how long 'such primitive, isolated spots' could continue to exist.⁷³ Krutch wondered whether solitude would be possible as human-made noise became omnipresent; 'how long will it be before' Krutch asked, 'there is no quietness anywhere, no escape from the rumble and the crash, the clank and the screech which seem to be the inevitable accompaniment of technology? Whatever man does or produces, noise seems to be an unavoidable by-product.'⁷⁴ Krutch considered the Canyon's soundscape a fragile resource and vulnerable to an influx of mechanical noise, which at the time existed largely beyond the park's boundaries. Krutch envisioned a time when the Grand Canyon would succumb to the noise of mechanisation.

When the ex-British Royal Marine and explorer Colin Fletcher walked the length of the Grand Canyon in 1963 (the area within the national park boundaries at

⁷² Joseph Wood Krutch, *Grand Canyon: Today and All its Yesterdays* (Tucson: University of Arizona Press, 1989), p. 11.

⁷³ The crash involved a United Airlines Douglas DC-7 and Trans World Airlines Lockheed L-1049 Super Constellation, 128 passengers and crew died in the accident.

⁷⁴ Krutch, *Grand Canyon: Today and All its Yesterdays*, p. 12.

that time) he described a soundscape of wilderness and solitude. The soundscape of silence that he described was similar to the sounds remarked on by guests of the El Tovar at the beginning of the 1900s. Fletcher's walk through the park took him to the South Rim where silence and solitude were replaced by the sounds of tourism. Musician Johnny Cash provided a spoken narrative to Andre Kostelanetz's Grand Canyon Suite recording of 1961 and stated that 'most of the sounds at the top of the canyon are human.' He provided recordings of conversations being held and 'the civilised sounds of a lady's high heels tapping her way down the walk...'⁷⁵ Cash conveyed the two-tier aural experience of the Canyon; those who heard the sounds of urban life at the rim, and those who heard the sound of crickets, storms and the river away from tourist areas.

Cash and Fletcher listened to the soundscape within a few short years of each other. Fletcher described a silence that represented to him the eons of time; he wrote that going into the Grand Canyon was like going into 'the silence and the solitude.'⁷⁶ Fletcher broke his camera during the hike and at first he 'simmered with frustration' over his inability to record his journey through photographs.⁷⁷ But he soon felt released from the burden of recording images of his expedition. He argued that 'photography {was} not really compatible with contemplation. Its details are too insistent. They are always buzzing around your mind and clouding the fine focus of appreciation...after the camera had broken, I found myself freed from an impediment I had not known existed. I had escaped the tyranny of film.'⁷⁸ Fletcher

⁷⁵ Johnny Cash, *The Lure of the Grand Canyon*, Columbia Records, 1961.

⁷⁶ Colin Fletcher, *The Man Who Walked Through Time* (New York: Vintage Books, 1989), p. 8.

⁷⁷ *Ibid.*, p. 124.

⁷⁸ *Ibid.*

described breaking his camera as the removal of a sensory barrier between himself and the Grand Canyon, which enabled him to immerse himself in the moment and the place. It allowed him to break from the restrictions placed on him by a society increasingly bound to visual imagery.

Fletcher recounted the visual experiences of his Grand Canyon trek, but he also recorded his expedition as a series of sonic events. He noted how he found himself 'really listening' to birdsong, which was not his 'habit' and that it made him stop in his 'tracks {and listen} to a soft, contemplative warble...'⁷⁹ Fletcher described an experience with a beaver, how its 'tail slapped explosively down...{with a} distinctive "ker-PLOOOOOSH.'⁸⁰ These were amongst the many sonic experiences that he recounted. Alongside these sound events, 'silence' was a pervasive aural theme that Fletcher noted over fifty times in his book. Fletcher defined silence within the context of what he called the Canyon's rhythm. At Bass Camp, he described the 'rhythmic rippling of the silence' and how his mind 'switched back from the solemn rhythms of geologic time to the ticking of the human clock.' When 'naked and free on the Tonto platform' he wrote that the 'world of rocks' that surrounded him provided a rhythm that was as real to him 'as the regular beat of the seconds that ticked past on my wrist watch.'⁸¹ Fletcher recalled a deeply personal sensory experience. Freed from the perceived need to visually record his experiences, he was able to immerse his thoughts in the Canyon.

⁷⁹ Ibid, p. 93.

⁸⁰ Ibid, pp. 158-161.

⁸¹ Ibid, pp. 146-147.

Fletcher was not ignorant of human sonic influence in the Grand Canyon. His hike occurred at a liminal moment when the noise of human activity, even far beneath the rim, was beginning to be heard. When he heard human-made sounds he described them as stark and out of place. He recalled that his own gas-cooking stove roared when set against the 'huge, soft, black, familiar silence' of the Canyon.⁸² Fletcher added aircraft to his list of human-made noise. He recounted how the Cesena airplane that dropped off his supplies continued 'droning on and away' as it departed. He described the sound of a high altitude commercial airliner, which he described as a 'whisper' that 'did not really damage the silence.'⁸³ Fletcher wrote that these infrequent sounds did not affect his 'cocoon of peace and solitude.'⁸⁴ In 1963, below the rim in the Grand Canyon and away from tourist centres, natural sounds could be heard largely unimpaired.

Yet like Krutch, Fletcher warned of an influx of human-made noise and cautioned that it would diminish the Grand Canyon's position as an exceptional natural place. He wrote of helicopters flying over the 'now silent terrace' and warned that the Canyon's silence would be the 'most certain and tragic loss.'⁸⁵ On his hike Fletcher came across the shattered remnants of the 1956 plane crash that occurred between two commercial airliners. He saw fragments of gleaming wreckage strewn over rocks and imagined the crash not through what he saw but what he heard in his imagination. He wrote that he did not want the Grand Canyon's 'silence' at that moment, as 'it was too easy to hear those last terrible seconds inside

⁸² Ibid, p. 9.

⁸³ Ibid, pp. 84-88.

⁸⁴ Ibid, p. 88.

⁸⁵ Ibid, p. 236.

the plunging airliner.⁸⁶ The imagined fearful screams of the passengers and the noise of impact were for Fletcher too painful to contemplate in the quiet beauty of the place. His sense of solitude and sense of place was further disrupted through the noise of a helicopter that hovered over the wreckage. Fletcher noted its 'roar and...distinctive, rhythmic thump,' the noise broke the silence and reminded him of his close proximity to human 'civilisation.'⁸⁷

Fletcher's experience at Phantom Ranch, the NPS boarding lodge at the bottom of the canyon, revealed how his sense of place was again compromised due to human sonic activity. Most visitors thought staying at the NPS facility, away from the humdrum of tourism at the rim, a real canyon experience. But Fletcher considered the conversation, typewriter and telephone he heard there as indicators of a 'padded civilisation.' It was as if the telephone was an aural conduit to modern life. He wrote of wanting to leave Phantom Ranch as soon as possible so he could once again shed his clothes and be in the 'space and silence and solitude.'⁸⁸ For Fletcher the silence of the Canyon was an essential factor in its importance as a place of natural significance and he believed that 'without this envelope of silence the Grand Canyon of the Colorado will no longer be a vast natural museum of the earth's history. It will no longer be a museum at all.'⁸⁹ Museums, Fletcher believed, needed to be experienced in reflective, thoughtful quiet.

Fletcher and Krutch argued that aircraft were a new problem as they could reach into the remotest areas of the national parks. Airplane noise had crept

⁸⁶ Ibid, pp. 184-185.

⁸⁷ Ibid.

⁸⁸ Ibid, pp. 149-150.

⁸⁹ Ibid, p. 238.

seemingly unnoticed into the parks; the ephemeral noise of the Lincoln Standards that flew over the Canyon in 1919 departed with the airplanes. However, advocates actively promoted air travel as an efficient and modern way to experience the nation's iconic landscapes. Requests for the construction of airstrips within the national parks had met resistance from NPS leaders and were largely excluded from the parks.⁹⁰ However, Assistant Secretary of the Interior C. Girard Davidson argued in 1949 that more airports were needed so that Americans could fly themselves to within easy reach of parks. His argument was simple; most of the large parks were in western states, while the majority of the population resided in the East. Davidson argued that aircraft were, 'the obvious vehicle for making parks more accessible.'⁹¹ He claimed that airports just outside of national parks were similar to railroad connections that terminated near to park entrances. 'Airports right on the outskirts of the parks,' Davidson argued, 'would provide suitable air transportation facilities for the parks and monuments and at the same time would enable conservation and protection of the scenic and historic values of the natural areas.'⁹² Davidson viewed airports as not only providing access but also conserving the parks' intrinsic natural and cultural properties.

Davidson's vision of Americans visiting parks by air in vast numbers as they did by automobile did not materialise, though a specific Grand Canyon airport did. Influential landscape architect Frank A. Waugh argued in 1918 that an airfield was

⁹⁰ There have been, and still are airstrips in national parks. For example there are three airstrips in Death Valley National Park. See 'Recreational Airstrips on Public Lands: A Reference Guide for Public Land Managers', Recreational Aviation Foundation, May 2011.

<<https://www.nifc.gov/aviation/BLMLibrary/RecAirstipPublicLands.pdf>> [accessed 4 January 2018].

⁹¹ C. Girard Davidson, 'Let's Build Airports for the National Parks', *Flying Magazine*, July 1949, pp. 15 and 75-76, (p. 15).

⁹² *Ibid*, (p. 76).

needed at the Canyon as part of a 'community plan.' Waugh claimed that 'the aeroplane is soon to be a common instrument of daily business and pleasure' and that aircraft would in the near future 'play a considerable part in canyon service.'⁹³ A 1952 NPS press release stated that visitors who flew to Grand Canyon National Park found travel difficult 'because of the long distance and consequent high cost of the trips between the Valle Airport and the park.'⁹⁴ The Park Service argued a new airport was 'urgently needed' as there had been 'insistent demand for such facilities so that the full immensity of this natural scenic wonder {could} be seen from the air.' From the outset, the new airport was proposed not only as a transportation hub, but as a base for scenic air tours as well. The proposed site 'near the Tusayan Lodge area', where the current Grand Canyon National Park airport is located, was opened in October 1965. The *Arizona Republic* reported the airport cost \$2.25 million to construct and was funded jointly by the NPS and Federal Aviation Agency (FAA, later renamed the Federal Aviation Administration).⁹⁵ Boosters claimed the airport would bring in air tourism and boost the state economy. Bonanza Air Lines officials stated that they expected 'a flood of air-travelling canyon visitors, many on side trips from Las Vegas vacations.'⁹⁶ With its close proximity to Las Vegas the new Grand Canyon Airport offered a convenient landing area close to the park entrance. It tied the park to Las Vegas itself, merging the visual delights of neon lights and excess of the strip with the monumental abyss of the Grand Canyon.

⁹³ Frank A. Waugh, *A Plan for the Development of the Village of Grand Canyon, Arizona* (Washington, U.S. Department of Agriculture, Forest Service, 1918), p. 22.

⁹⁴ MC, GCNP, GRCA 75813, Folder 1. H. C. Bryant, Superintendent Grand Canyon National Park, 'Grand Canyon May Secure Airport', Press Release No. 73, 10 July 1952.

⁹⁵ MC, GCNP, GRCA 75813, Folder 1; 'Grand Canyon Airport Opens', *Arizona Republic*, 4 October 1965, (n.p.) (The Grand Canyon Airport terminal was completed in 1967 and the airport dedicated in October 1967).

⁹⁶ This refers to Bonanza Air Lines, founded in 1945. Through mergers it became Air West and eventually Hughes Airwest.

Located in Tusayan and within approximately seven miles of the South Rim, the new airport provided easy access to the Canyon. The rapid increase in tourists who used John Siebold's Scenic Airlines illustrated the growing popularity of air tours that followed the airport's opening. Siebold flew just 278 tourists in his five-passenger Cesena during 1967, but by 1970 this had increased to 6,357.⁹⁷ The airport also increased helicopter sightseeing tours. Superintendent Howard Stricklin stated helicopters were first used in 1966 'as a means of transportation to view and enjoy the wonders of Grand Canyon.'⁹⁸ Helicopter pilots were not permitted to land in the park and were requested to avoid flying over Grand Canyon Village or in close proximity to both the Bright Angel and Kaibab trails and Yavapai Museum. Stricklin optimistically reported that 'to date they have cooperated very well.'⁹⁹ With increased visitation to the parks, air tour operators saw their businesses expand exponentially. Stricklin noted that both the companies that offered helicopter tours had found the flights, which lasted from 15 to 20 minutes, to be 'very popular.'¹⁰⁰ The *Arizona Republic* reported in 1966 that business was booming for Tusayan Helicopters, taking passengers on tours over the Canyon and transporting NPS officials beneath the rim.¹⁰¹ Helicopters were used for maintenance and construction work in the Canyon. In 1966 materials needed for the construction of the trans-canyon water line, new suspension bridge, power cables for Phantom

⁹⁷ MC, GCNP, GRCA 102696, Grand Canyon National Park Overflight Administrative Record 1974-2010, Phase 2, Kevin Roache 'History of Aviation at Grand Canyon National Park and Examination of Wilderness Value in the Light of Continued Development by Aviation Industry', p. 3.

⁹⁸ MC, GCNP, GRCA 75813 Folder 1, Superintendent Howard B. Stricklin to Director NPS, September 1966: Subject: Helicopter Service.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

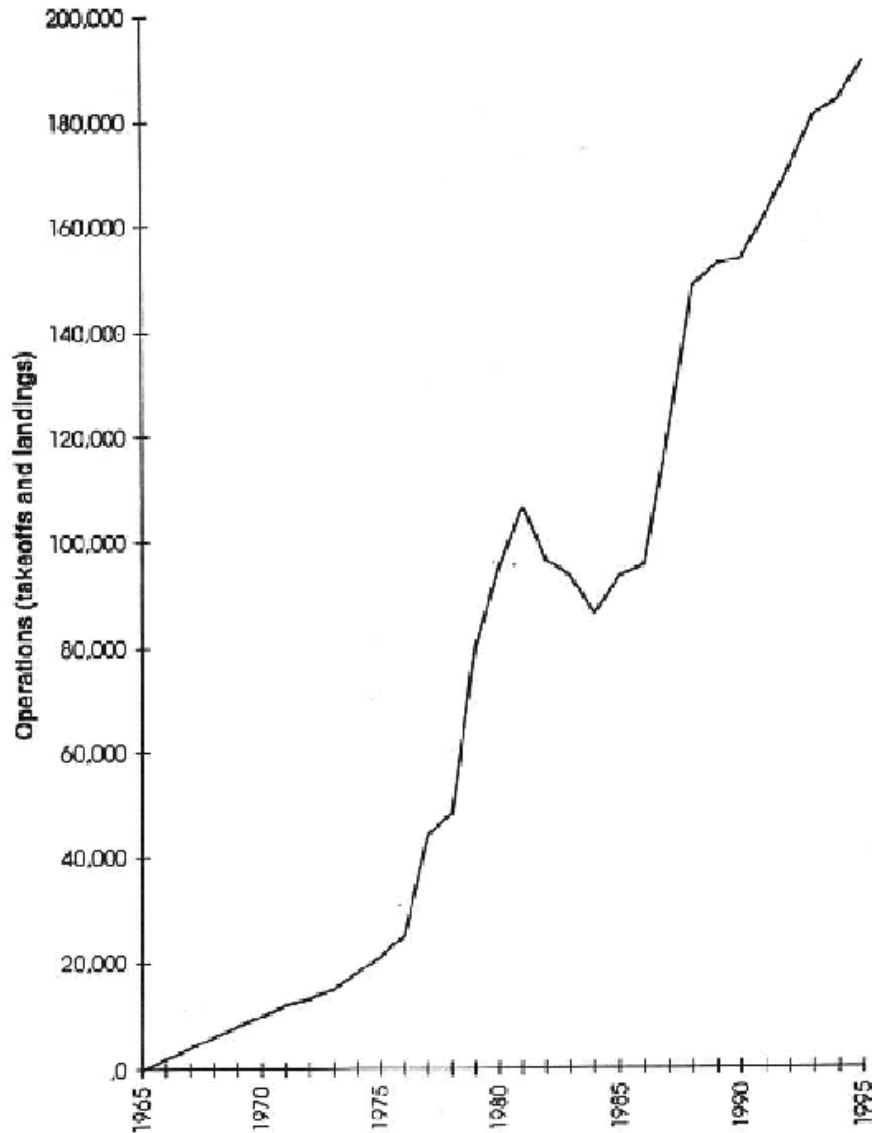
¹⁰¹ MC, GCNP, GRCA 75813, Folder 2; Airplanes in GC, Brochures, Adverts, Postcards, Grand Canyon Museum, Grand Canyon National Park. 'Business at Grand Canyon Buzzing for Copter Firm', *Arizona Republic*, 24 July 1966, (n.p.).

Ranch and equipment for the pumping station at Indian Gardens were transported down into the canyon by helicopter.¹⁰²

By the early 1970s the noise of fixed-wing aircraft, helicopters and commercial airliners over and within the Canyon had become a common feature of the park. Grand Canyon National Park Airport provided the infrastructure for a boom in scenic air tours. As the graph below demonstrates, flights from Grand Canyon Airport increased at a rapid rate. In part this was due to an increase in tour operators and a reduction in costs. But there was demand from tourists to see the Canyon from the air. Without tourist interest, fuelled in part by operators' advertising, there would not have been an increase in scenic flights. Such was the level of use that the airport was extended in 1972 with a longer runway built to accommodate larger aircraft.

¹⁰² Ibid.

**Air Tour Operations at Grand Canyon Airport
(Tusayan, Arizona)**



15. Graph courtesy of the Sierra Club, Southwest Chapter¹⁰³

The roar of Cold War aircraft permeated the Grand Canyon. Air Force jets flying out of nearby Nellis Air Force base during the Cold War used the inner canyon

¹⁰³ Dickson J. Hingson, 'Natural Quiet Resource Management (Overflight Noise) at Grand Canyon National Park: The Reagan Torpedo, 1986-1987'.

as a training ground.¹⁰⁴ Military pilots dropped down beneath the rim and skirted the walls of the inner canyon. The noise of their engines reverberated through the park, disrupted the quietude and degraded tourists' aural experiences.¹⁰⁵ Naturalists Ann and Myron Sutton recounted their encounter with military aircraft flying within the inner canyon in 1971. 'Two military jets, in close formation,' they wrote, 'dived into the inner gorge, skimming the cliffs and breaking the silence with a piercing, shattering roar.'¹⁰⁶ Their account was one amongst many that illustrated the effect low-level flying military jets had on the soundscape. The presence of these aircraft in the Canyon was occasionally dangerous as they shared a common physical space with air tour and maintenance aircraft. In 1969 Park Ranger Philip McComb reported seeing a military jet flew within 500 feet of a helicopter carrying a slingload near the South Kaibab Trail.¹⁰⁷

Noise produced by jet aircraft, particularly sonic booms, became an issue within the broader national park system. Concerns were raised over potential ecological and archaeological damage caused by the sonic energy released by aircraft. Damage was sometimes rather minor. At the North Rim Lodge in the Grand Canyon on 13 February 1973 a 'large picture window' was broken by a sonic

¹⁰⁴ Ellis Air Force Base to Grand Canyon Village is about 165 miles as the crow flies

¹⁰⁵ Footage filmed onboard a Lockheed T-33 training jet piloted by Ron Dick of the Royal Air Force in 1959 and 1960, demonstrated how low through the Grand Canyon military aircraft flew at this time. Nellis Air Force, from where these jets took off, is about 165 miles from Grand Canyon Village. See Tony Reichhardt [online.], 'A Joyride Through the Grand Canyon', *Air & Space Magazine*, 4 November 2009. [cited 2 June 2017]. Available from: <<http://www.airspacemag.com/daily-planet/a-joyride-through-the-grand-canyon-121270004/>>.

¹⁰⁶ Ann Sutton & Myron Sutton, *The Wilderness World of the Grand Canyon "Leave it as it is"* (Philadelphia: Lippincott, 1971), p. 164.

¹⁰⁷ MC, GCNP, GRCA 94948, Folder 1, Documents and Public Comments, GCNP Overflight Admin Record 1972-1992 Phase 1, Assistant Chief Ranger, District Ranger, Inner Canyon, 'Near-Miss Aircraft Incident', 16 May 1969.

boom.¹⁰⁸ But there were fears that sonic booms could cause damage to the landscape. In Arches National Monument (now Arches National Park), Utah, Superintendent Bates E. Wilson stated his concern that sonic booms could damage Landscape Arch. Wilson feared the iconic 300-foot natural arch ‘could easily collapse {...} because military jets roar through here almost daily raking the monument with sonic blasts.’ He added that a sonic boom had previously caused a rockslide that blocked the main park road.¹⁰⁹ NPS Director Hartzog noted his anger over the military’s continued use of the national parks as training areas. He claimed sonic booms were ‘getting out of hand’ as over the previous four years more than 5000 had been recorded within the national park system. Hartzog noted Death Valley National Monument in California (it became a National Park in 1994) as a favourite location for military aviators. Over a three-year period, Hartzog reported, over 900 military jets had ‘buzzed’ the park and 700 of them had ‘been below sea level, frequently only 100 feet off the ground.’¹¹⁰ While the NPS and naturalists alike decried the noise of military aircraft, others celebrated the noise. Roaring jets were heard in patriotic passion as the sonic signature of the fight against communism. In Colorado residents attached bumper stickers to their cars that stated “Jet Noise: The Sound of Freedom.”¹¹¹ Freedom, it appeared, came with a substantial decibel level. Just as the landscape of the American West had been sacrificed for national security

¹⁰⁸ MC, GCNP, GRCA 94948, Folder 1, Richard C. McLaren, Air Operations Officer, to Colonel David B. Young, Commander – U.S. Air Force, Nellis AFB, Nevada, 17 March 1973.

¹⁰⁹ MC, GCNP, GRCA 94948 Folder 1. Charles Hillinger, ‘Jets’ Sonic Booms Threaten Fragile Natural Monuments’, *Greeley Daily Tribune*, 8 March 1972, p. 15.

¹¹⁰ Ibid. There were also (unconfirmed) reports of a ‘Below Sea Level Club’ of military aviators. See ‘Final Environmental Impact Statement for Development of Facilities’ U.S. Pacific Fleet F/A 18 E/F (1998) < <https://books.google.co.uk/books?id=2fg3AQAAAMAAJ&pg=SA10->> [accessed 2 June 2017].

¹¹¹ DPL, Denver, NPCA Box 71, Folder 1, Denver Public Library, Tom Wolf, ‘Bombed and Strafed by a Relic of the Cold War’, *Los Angeles Times*, 29 May 1994, n.p.

through atomic testing, the natural soundscape was sacrificed in the fight against communism.

Concerns over sonic booms at the Grand Canyon and other national parks led to passage of Air Force Regulation 55-34 on 14 February 1972. The Act restricted flights over particular areas to reduce complaints from the public.¹¹² However, noise from supersonic military jets not only continued at the Canyon but an increase in sonic booms was reported in 1973.¹¹³ Superintendent Stitt complained in January 1973 to the Commanding Officer of Nellis Air Force Base of the resumption of sonic booms caused by supersonic F-111 fighters, which he stated, had been 'mercifully absent for a period of time.'¹¹⁴ At Grand Canyon Village between February and November 1973, concerned officials' recorded twelve sonic booms. Administrators noted that these ranged from 'light', to 'moderate' to 'loud' and stated that windows were rattled by the sonic energy.¹¹⁵

An increase in flight activity above the Canyon and beneath the rim by the NPS, military, commercial airlines and scenic air tour operators, raised noise pollution levels. John Wesley Powell and early tourists had described the Canyon as a place of 'silence.' But by the end of the 1960s 'silence' was hard to locate as mechanised noise permeated the park. Concern over the sonic impact of aircraft and the suitability of their presence at the Grand Canyon became more common as complaints from tourists increased. Tourist Albert Heckbert complained in 1969 of

¹¹² Air Force Regulation 55-34: Reducing Flight Disturbances that Cause Adverse Public Reactions 1972.

¹¹³ MC, GCNP, GRCA 94948 Folder 1, Richard C. McLaren, Air Operations Officer, to Colonel David D. Young, Commander U.S. Air Force.

¹¹⁴ MC, GCNP, GRCA 94948, Folder 1, Merle E. Stitt, Superintendent Grand Canyon National Park to Commanding Officer, Ellis AFB, Nevada, 6 January 1973.

¹¹⁵ MC, GCNP, GRCA 94948, Folder 1, 'Sonic Boom' Hand written notebook, 1973.

the noise of helicopters he experienced while hiking the Kaibab and Bright Angel Trails. Heckbert wrote that his trip was marred by the 'nearly constant intrusion by the helicopters' and he added that they had 'no right to fly in the Canyon.'¹¹⁶ Not all visitors thought that seeing the Grand Canyon through the window of an aircraft was a good idea.

National park visitors argued that the Grand Canyon and other parks needed to be preserved as sanctuaries from modern noise. Tourist Alfred Haertel wrote to NPS Director George Hartzog in 1969 that the national parks 'must be an example of an environment without the noise, fumes, congestion, etc. of the urban centres.' He added that he considered helicopter noise 'an obnoxious intrusion.'¹¹⁷ Tourists in the late-1960s wrote of their fear that the park had succumbed to external noise influences. Park visitors complained that the noise from aircraft ruined their sense of solitude and wilderness. Tourist Jane Soloff argued in 1969 that the Grand Canyon was 'one of the few remaining areas of peace and solitude and beauty in the U.S.' and asked whether it was acceptable for it to be 'slowly destroyed and eroded by an encroaching industrial society.'¹¹⁸ Soloff argued that the park's integrity was compromised by the influence of external noise.

Visitors questioned whether the Grand Canyon was still a place of quietude and compared its soundscape to that of urban areas. A tourist's complaint letter filed in February 1971 argued that the NPS had previously described the Canyon as a

¹¹⁶ MC, GCNP, GRCA 94948, Folder 1, Albert Heckbert to Director George B. Hartzog, National Park Service, 1 October 1969.

¹¹⁷ MC, GCNP, GRCA 94948, Folder 1, Alfred Haertel to George Hartzog, Director National Park Service, 3 October 1969.

¹¹⁸ MC, GCNP, GRCA 94948, Folder 1, Jane Soloff to George B. Hartzog, Director National Park Service, 21 October 1969.

place of 'silence', but that this was no longer the case. The complainant wrote that 'from dawn to dusk the canyon echoes with the buzzing of airplane and helicopter engines.' They added that it sounded 'more like a suburb on lawn mowing day than a national park' on account of the noisy machines.¹¹⁹ Air tour operators were permitted at this time to fly beneath the rim and there was less regulation of other aircraft usage. Backcountry users made numerous complaints of close encounters with aircraft, which included being 'buzzed' by helicopters when they floated the Colorado River. South Rim Manager Richard McLaren wrote to Grand Canyon Helicopters about tourists who had complained that the company's helicopters flew less than 200 feet above them around Roaring Springs and Bright Angel Canyon.¹²⁰

Tourists continued to complain about aircraft noise as revealed in NPS comment cards from 1981. They remarked that their sense of being in a natural place was compromised by aircraft noise. Tourist Carl Bowman wrote that 'the peace and solitude of the Canyon {was} severely disturbed by the intrusion of {of aircraft}'; Ed Young of Utah complained that 'the beauty of the park was seriously impaired by flights'; tourist David Wilson wrote that the 'wilderness quality {was} destroyed by the tremendous amount of air traffic'; Ann Walsten complained that the 'noise of jet airplanes and commercial airplanes {was} a distraction.'¹²¹ The dominant theme amongst these complaints from backcountry users was that their sense of wilderness, solitude and distance from modern living was compromised by

¹¹⁹ MC, GCNP, GRCA 94948, Folder 1, Robert R. Hessler, Complaint Form, Grand Canyon National Park, 14 February 1971.

¹²⁰ MC, GCNP, GRCA 94948, Folder 1, Richard C. McLaren, South Rim Manager, to Bill Meares, Grand Canyon Helicopters, October 1970.

¹²¹ MC, GCNP, GRCA 66957, Aircraft Noise Complaints 1981, Grand Canyon Museum, Grand Canyon National Park.

the noise of aircraft. Yi-Fu Tuan's argument that the presence of other humans led to thoughts of being overcrowded, were echoed in the complaints of backcountry users. Tourists felt crowded out by other humans due to mechanised noise.

To determine the extent of noise pollution in the Canyon studies were conducted that provided a fuller understanding of the issue. A report submitted by Charles Black, Associate Professor of Science at Northern Arizona University, measured noise levels at twelve sites over Labor Day weekend in 1971. The sites were located at both the South Rim and bottom of the Canyon and listed the loudest noises (in order) as a diesel-electric generating station, motorcycles and aircraft and noted that 'during one day of the survey, aircraft noise was essentially continuous at all sites.'¹²² A number of studies followed Dr Black's to determine the effect and extent of aircraft noise. Dr Eldon G. Bowman's conducted an eighteen-day study in 1975 on the Bright Angel. He reported that on any typical day (8 a.m. to 5 p.m.) 72 aircraft were observed 'whose combined noise was heard during 43% of the time.'¹²³ Sociological studies were performed to determine whether noise negatively impacted visitors' experiences. A survey conducted by William Towler in 1977 reported that of the 251 backcountry users who were interviewed, 71% stated that aircraft 'detracted from their enjoyment of the park.' A further survey of 2412 backcountry users in 1986 survey reported that 32% of cross-canyon corridor hikers

¹²² MC, GCNP, GRCA 94948, Folder 1, Charles H. Black, 'Report of Preliminary Survey of Noise Levels in Grand Canyon National Park', 1971.

¹²³ National Park Service, 'Aircraft Management Plan Environmental Assessment: Grand Canyon National Park' May 1986, p. 17
<<https://www.gcmrc.gov/library/reports/GrandCanyon/GCNP1986b.pdf>> [accessed 20 February 2015].

found aircraft detracted from their trip and 75% on non-corridor hikers agreed in the same manner.¹²⁴

The NPS collected unsolicited noise complaint letters and the location where each sonic event occurred. Administrators received 150 letters between 1978 and 1981 that specifically referenced aircraft noise.¹²⁵ Superintendent Richard W. Marks report of the findings noted that the number of complaint letters did not 'seem to indicate a real significance' but that qualifying observations were needed.¹²⁶ He remarked that it was a 'visitor's right to expect and enjoy the natural sounds, or quiet, of the Grand Canyon' and that these were as fundamental as the right to 'clean air, clean water, and other natural resources.'¹²⁷ Marks added that complaint letters needed to be considered in connection with complaints over of park resources. He noted that the 'park received almost no complaint letters directly involving any of its other natural resources during this time interval.' Marks also stated that the NPS maintained a 'strict policy of nonsolicitation (sic) of any complaints or compliments.'¹²⁸ The letters, he added, did not take into account 'verbal complaints regularly received at the Visitor Centre and backcountry ranger stations' and concluded it would be a mistake to believe that there was 'no problem...simply because we do not have volumes of complaint letters.'¹²⁹

¹²⁴ Ibid.

¹²⁵ MC, GCNP, GRCA 49267: Air Taxi Complaints 1981-1983, Grand Canyon Museum, Grand Canyon National Park. Superintendent Richard W. Marks, 'Samples of Aircraft Noise Compliant Letter and Visitor Comment Sheets: Grand Canyon National Park', 10 June 1981.

¹²⁶ MC, GCNP, GRCA 49267, Superintendent Richard W. Marks, 'Samples of Aircraft Noise Compliant Letter and Visitor Comment Sheets: Grand Canyon National Park', 10 June 1981.

¹²⁷ Ibid.

¹²⁸ Ibid.

¹²⁹ Ibid.

Marks' comments demonstrated that he considered noise to be a significant issue at the Grand Canyon. He argued that visitors had the right to experience the park without being disturbed by aircraft noise. Analysis of complaint letters highlighted that backcountry tourists felt that their sense of silence, wilderness and solitude was disrupted by the presence of aircraft. Robert C. Tewit from Tucson, Arizona, complained that 'the disruption of motor noise from flight after flight spoils the sense of wildness and quiet' and an unnamed backcountry user wrote that they were 'very disappointed at the constant helicopter traffic' and that 'the Canyon should be a place of peace and solitude – a place to reflect and dream.'¹³⁰ Complainants overwhelmingly referred to sonic disturbance, rather than visual intrusion and revealed that visitors thought that their sense of being in a natural space was compromised.

Sonic disruptions to backcountry users' sense of the Grand Canyon as a place of solitude and silence were, despite the repetitiveness of the occurrences, temporary events. Aircraft noise altered perception of place only for the duration heard. Aircraft noise was a time specific event as it temporarily altered one of the sensory perceptions, and bridged the distance between a perceived primordial and modern space. The boundary between the park as a natural place and a modern urban space was destroyed for some visitors through the sonic intrusion of mechanised machinery.¹³¹ In the Grand Canyon aircraft noise affected travellers'

¹³⁰ MC, GCNP, GRCA 49267, Robert C. Tewit, Tucson, AZ to Superintendent Marks, 16 October 1982; Unknown Backcountry User to Superintendent Marks, 21 May 1982.

¹³¹ Steven Connor, 'The Modern Auditory I' in *Rewriting the Self: Histories from the Renaissance to the Present*, ed. by Roy Porter (New York: Routledge, 1997), pp. 203-223 (p. 206).

experience of place, as the 'natural' space was reconfigured and symbolised a modern space due to invasive noise.

Increased visitation of the Grand Canyon and Yosemite National Park brought invasive mechanised noise into the parks. Aircraft, which had initially been greeted with enthusiasm as a novelty, transformed park soundscapes. The noise of military jets, commercial airliners and scenic air tours reached into remote backcountry areas, degraded the natural soundscape and altered visitors' sense of place. With the development of airfields near to national parks scenic air tours became a viable business. Public demand to see the Grand Canyon from the air fuelled the growth of the air tour industry and brought increased mechanised noise into the park. By the late 1960s pervasive aircraft noise led to park tourists complaining about the noise. Backcountry users who had ventured into remote areas were disturbed by aircraft noise and complained that their quest for wilderness and solitude was ruined. Environmentalists and concerned tourists began to feel that aircraft noise needed to be eradicated, or at the least reduced, in the parks.

Chapter VI

The Fight to Restore Natural Quiet

‘Whatever you call it – racket, din, clamor, noise – unwanted sound is one of America’s most widespread nuisances. But noise today is more than just a nuisance – it is a threat to people’s health. In the past few decades, noise has spread from the denser urban areas to suburban and rural communities. Noise has also spread from the workplace to the home and many places in between. No longer is noise just an occupational hazard experienced by an urban minority.’ Henry Thomas, Director, Standards and Regulations Division, Office of Noise Abatement and Control to Organisation Director, United States Environmental Protection Agency, 19 April 1978.¹

In 1906 the novelist Zane Grey noted in the guest register of the El Tovar Hotel his impressions of the Grand Canyon. ‘One feature of this ever changing spectacle never changes,’ Grey wrote, ‘its eternal silence {...} there is always that same silence.’² However, he was mistaken in his claim that the Canyon’s ‘silence’ was eternal. Just eighty years after Grey wrote these words the National Park Service released a report that highlighted a different sonic identity of the park. The report stated that aircraft noise was the ‘number one resource management issue’

¹ BL, UC, Berkeley, Sierra Club Records, Carton 126 Folder 13, Henry Thomas, Director, Standards and Regulations Division, Office of Noise Abatement and Control to Organisation Director, United States Environmental Protection Agency, 19 April 1978.

² NAU, Flagstaff, SCA, 1906. Fred Harvey Collection, Series 1, Box 20, Folder 106.

in the Grand Canyon.³ Since Grey had scribbled his thoughts down in the El Tovar guest register to when the NPS released their report the Grand Canyon underwent a period of radical sonic change. The park of silence became the park of noise.

The transformation of the park's sonic identity was initially slow. The first flights over the Grand Canyon had occurred in 1919 and there were no reports at the time of anyone being concerned. Only twenty years before the NPS report Colin Fletcher had described the 'silence' of the backcountry on his hike through the national park. But by the 1970s this silence was being drowned out by a cacophony of aircraft noise. Some had warned about the potential noise threat. Both Joseph Wood Krutch and Colin Fletcher had a sense that the Canyon's silence would succumb to the noise of modern life. Yet environmental groups primarily focused their attention on urban noise and were primarily active in attempting to reduce noise levels only generally. They paid no particular attention to noise pollution in protected areas. At the Grand Canyon in the 1960s environmentalists' activities were fixed on proposals made by the Bureau of Reclamation to dam the Colorado River in the park. Aircraft noise was considered a nuisance rather than an overriding threat to the park's natural integrity. By the time complaints were made and noise abatement campaigns instigated in the 1970s, scenic air tours were an established and expanding business. As operators provided employment both locally and in Las Vegas, a service valued by tourists and a boost to both Arizona and Nevada's economies, they held power. Once the air tour industry had become established, the Park Service, environmental groups and concerned tourists found them hard to

³ National Park Service, 'Aircraft Management Plan Environmental Assessment: Grand Canyon National Park' May 1986, p. 1.

silence. What ensued was an acrimonious, bitter and long-fought battle between an air tour industry that made money from flying tourists and conservationists who believed that the Grand Canyon ought to be free from mechanised noise.

Americans have complained about unwanted sound since at least the nineteenth century when the noise of industrialisation permeated the urban soundscape. While some heard the clank of machinery as the sounds of progress, others were infuriated by the noise and took action to reduce its impact. Noise was also considered a class issue. The working class were considered the makers of noise while those who were more affluent were thought of as the quieter and more aurally reserved class. Regardless of who was making noise and who was most affected, it was predominantly heard as an urban issue. The National Parks and wilderness areas were considered to be islands of tranquillity in a sea of noise. It was not until the post-1945 era when Americans descended en masse to the parks that noise was understood to be an issue.

Noise continued to be considered a predominantly urban problem as the twentieth century progressed. Despite progressive era noise abatement campaigns it was not until the 1970s that proactive and meaningful legislation was enacted to reduce Americans' exposure to noise considered harmful to health. The Noise Control Act of 1972 was the first significant piece of legislation that established a 'national policy to promote an environment for all Americans free from noise that jeopardises their health.'⁴ The Quiet Communities Act followed in 1978 and this act

⁴ 'Summary of the Noise Control Act: 42 U.S.C. 4901 et seq.' (1972).

authorised the Environmental Protection Agency (EPA) to provide grants to state and local governments for noise abatement.⁵

The EPA conducted research in the 1970s to ascertain the extent of noise pollution in the United States. The agency published industrial standards for noise levels that included interstate railroads, portable air compressors, trucks, buses, motorcycles and other mechanised machinery. The Department of Housing and Urban Development carried out a noise pollution survey in 1973 of 60,000 urban dwellers, which revealed that 34% of respondents felt noise was a 'condition' in their neighbourhoods.⁶ The EPA made further recommendations during the decade that included the 'Proposed Quieting of Jet Airplanes' in 1975. This was due to the estimation that 16 million Americans were subjected to a 'wide range of aircraft noise', which could 'interfere with the normal use of homes and yards and poses a particularly serious problem for institutions such as schools and hospitals.'⁷ The EPA estimated in 1974 that nearly 100 million Americans were subjected to disruptive noise levels that averaged in excess of 55dB.⁸ The agency's 1978 report, *Noise: A Health Problem*, went further and listed nine issues associated with excessive noise that included, 'heart disease', 'sleep disruption' and 'danger to life and limb'.⁹ The EPA argued that excessive noise was not only dangerous but debilitating and deathly as well.

⁵ 'The Quiet Communities Act' (P.L. 95-609) 1978.

⁶ Sidney A. Shapiro, 'Lessons from a Public Policy Failure: EPA and Noise Abatement', *Ecology Law Quarterly*, 19.1 (January 1992), 1-63 (p. 6).

⁷ Environmental Protection Agency, 'EPA Proposes Quieting of Jet Airplanes' Press Release 31 January 1975. Available from: <<https://archive.epa.gov/epa/aboutepa/epa-proposes-quieting-jet-airplanes.html>> [accessed 15 August 2017].

⁸ Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, 1976.

⁹ Environmental Protection Agency, 'Noise: A Health Problem', August 1978.

Environmental groups joined in the chorus for a less noisy environment. The Sierra Club, Friends of the Earth and the Citizens League Against the Sonic Boom (CLASB) rallied against the sonic impact of Supersonic Transport during the 1970s, specifically the British-French engineered Concorde SST that first flew in 1969. The CLASB, who claimed a membership of 4000, argued that Concorde was the 'rudest airplane ever built' and that its 'sonic-boom bang-zone {was} 50 miles wide and thousands of miles long.'¹⁰ The Sierra Club was active in noise abatement in urban areas and called for 'simple procedures and principles' that they believed could 'accomplish dramatic results in a short time.' The Sierra Club's Fred Roberts wrote in 1971 that it was the club's position for urban parks to be 'refuges from the growing din of the city' and that 'roads, noisy public service facilities such as heliports, etc. should not be located in or near such parks.'¹¹ Those unable to enjoy solitude in national parks should, the club argued, be able to find respite from the din of modern living within urban parks.

Although Sierra Club members were actively involved in noise abatement in the 1970s, the club was not specifically involved with noise pollution in the national parks. Club member John Grebenkemper asked the club in September 1973 what their position was on aircraft noise in wilderness areas. Louise Nichols, a Sierra Club employee, replied that the club did not have any real position. She stated that 'insofar as aircraft noise over wilderness areas or other backcountry regions is

¹⁰ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 163 Folder 32, University of California, Berkeley. William A. Shurcliff, Director, Citizens League Against the Sonic Boom, to Director (unknown), 30 October 1972.

¹¹ BL, UC, Berkeley, Guide to the Sierra Club Records, BANC MSS 71/103 Carton 146 Folder 3, University of California, Berkeley. Testimony of Fred S. Roberts for the EPA Hearings on Noise Abatement and Control, New York, 22 November 1971, 'Sierra Club Recommendations on Abatement and Control of Urban and Transportation Noise'.

concerned, however, I regret that our activity has not been as coordinated as it is been for aircraft noise in general – that is in working to reduce the aircraft noise we have not specifically concentrated on routes which in the Club’s judgement are inappropriate.’ Nichols wrote that organisation members were more interested in reducing the ‘actual noise emitted from aircraft through legislation’ than reducing aircraft noise in specific wilderness and backcountry areas.¹² Richard Walker, a research assistant at the University of Idaho, enquired in 1973 about what research the club had undertaken on noise pollution in protected areas.¹³ Nichols replied to Walker that the information and research that they possessed was in reality ‘scant’ and regretted that there was no more ‘substantial assistance’ that could be offered.¹⁴ The club’s responses to these enquires demonstrated how unprepared they were to address rising decibel level in the parks. This lack of knowledge meant that the organisation was not in a position to effectively campaign against tour operators as they became established and influential.

The Sierra Club’s lack of awareness in respect to noise in protected areas was an oversight on its part. Noise pollution from aircraft in national parks and wilderness areas had a long history in addition to that of military operations in Yosemite during WWII. The campaign led by the environmentalist Sigurd Olson in the 1940s to alleviate seaplane noise in Superior National Forest and Quetico Provincial Park underscored that protected areas were not immune from invasive

¹² BL, UC, Berkeley, Sierra Club Records 71/103 Carton 103 Folder 23, Louise Nichols, Conservation Department, Sierra Club to John Grebenkemper, 12 September 1973.

¹³ BL, UC, Berkeley, Sierra Club Records 71/103 Carton 103 Folder 23, Richard Walker, College of Forestry, Wildlife and Range Sciences, University of Idaho, to Louise Nichols, Conservation Department, Sierra Club, 15 October 1973,

¹⁴ BL, UC, Berkeley, Sierra Club Records 71/103 Carton 103 Folder 23, Louise Nichols, Conservation Department, Sierra Club, to Richard Walker, College of Forestry, Wildlife and Range Sciences, University of Idaho, 29 October 1973.

mechanised noise. WWII veteran aviators saw a business opportunity in flying fishermen into the area by seaplane that brought aircraft noise into a region that had displayed all the sonic hallmarks of nature. The lure of dollars that could be earned through air taxi services, threatened the primal sonic qualities of the wilderness area. The controversy, revealed by David Backes in his biography of Olson, detailed the fight between conservation groups and aircraft operators and the bitter resentment that ensued.¹⁵ Olson embarked on a campaign that involved books, lectures and film showings that earned the support of locals, business and political leaders – but not of those who supplied airplane services. The campaign was ultimately successful and President Harry Truman prohibited the flights in May 1949 by executive order, the first time that aircraft restrictions had been put in place to preserve a natural area. The issue highlighted that road-less areas were no longer a barrier to the incursions of humans and their machines.

Construction of Grand Canyon National Park Airport in 1966 brought an increase in flights and a correspondent rise in aircraft noise pollution. Analytical and sociological studies conducted at the behest of the NPS confirmed that noise was an issue at the park. Tourist complaints revealed that some visitors' experiences, especially backcountry users, were compromised by aircraft noise. The NPS were particularly forthright in expressing their concerns. Grand Canyon National Park Superintendent Robert R. Lovegren declared in 1970 that he and 'many of us are of the opinion that helicopter noise does nothing to preserve the integrity of the

¹⁵ David Backes, *A Wilderness Within: The Life of Sigurd Olson* (Minneapolis: University of Minnesota Press, 1997), pp. 190-203.

Canyon's wilderness character.'¹⁶ Assistant NPS Director Edward Hursmel concurred. He stated in 1971 the agency's increased concern over aircraft noise in the national park system and the Grand Canyon in particular. Hursmel wrote that the park was 'one of the areas of the National Park System in which noise disturbance particularly that caused by sonic booms and low-flying aircraft, has developed concern.'¹⁷ John E. Cook, Acting Director of the Western Region for the NPS, wrote in response to one visitor complaint from 1972 that 'low flying aircraft over Grand Canyon and other areas of the National Park System detract from what we refer to as on "appropriate park experience."¹⁸

Although NPS officials expressed concern, they did not have the authority to address aircraft noise pollution. The NPS were in administrative control of the park at ground level but jurisdiction for flying in the parks rested with the FAA. The NPS only had authority over aircraft landing within park boundaries. FAA regulations restricted flying within 500 feet of inhabited areas, but there were no restrictions over uninhabited areas. As the vast majority of the park was uninhabited, pilots could effectively fly wherever regardless of what the NPS advocated. Cook regrettably noted that the NPS were, 'powerless with regard to exerting control' over flights and added that the agency's efforts to 'have minimal altitudes over areas of the National Park system increased' had been unsuccessful.¹⁹ The FAA was an

¹⁶ MC, GCNP, GRCA 94948, Folder 1, Robert R. Lovegren, Superintendent Grand Canyon National Park to George L. Beck, Northern Arizona Research Project, 9 September 1970.

¹⁷ MC, GCNP, GRCA 94948, Folder 1, Edward A Hursmel, Assistant Director, NPS, to Sam Steiger, House of Representatives, 22 April 1971.

¹⁸ MC, GCNP, GRCA 94948, Folder 1, John E. Cook, Acting Director, Western Region, NPS to Ida Martin Chiaraviglio, 22 December 1972.

¹⁹ Ibid.

agency that promoted the aviation industry and attempts by the NPS to lessen the sonic impact of aircraft were therefore difficult to achieve.

The NPS did take what action the agency could to address aircraft noise. Within the Noise Control Act of 1972 there existed the legislative framework for noise abatement at the Grand Canyon. This was recognised in the Grand Canyon Enlargement Act of 1975, which specified noise pollution as an issue in need of attention. The Enlargement Act, which was introduced in March 1973 and enacted in January 1975, sought to protect the ‘outstanding scenic, natural, and scientific values of the Grand Canyon by enlarging the Grand Canyon National Park in the State of Arizona...’ Section 8 of the Act, titled ‘Aircraft Regulations’, specifically addressed aircraft noise pollution. The section stated that it required the Secretary to act whenever there was reason to believe that ‘any aircraft or helicopter within Grand Canyon National Park...including the airspace below the rims of the canyon, {was} likely to cause... a significant adverse effect on the natural quiet and experience of the park.’ It continued that the ‘Secretary shall submit to the Federal Aviation Agency, the Environmental Protection Agency pursuant to the Noise Control Act of 1972...complaints, information, or recommendations for rules and regulations...’²⁰ The Enlargement Act was significant as it recognised natural sounds, and the opportunity to hear them undisturbed, were a specific and valued park resource.

Natural quiet was by the 1970s accepted as a specific park resource. The NPS recognised that tourists visited national parks to enjoy the natural soundscape. Jon

²⁰ S. 1296 (93rd): Grand Canyon National Park Enlargement Act (1975) – Section 8.

Hamm, a National Park Service Resource Specialist, wrote in 1972 that ‘one of the many environmental stresses that man seeks to escape by visiting Grand Canyon is the clamour of technological society.’²¹ In the Canyon, long noted by tourists for its ‘silence,’ natural quiet became to be considered an integral part of the park’s natural attributes. Superintendent Richard Marks expressly referred to natural quiet as a park resource. ‘The park considers,’ Marks wrote, ‘that a visitor’s right to expect and enjoy the natural sounds, or quiet, of the Grand Canyon is as fundamental as his right to enjoy clean air, clean water, and other natural resources protected within the national park.’²² Marks brought the importance of natural sounds as a park resource to the fore and up to an equal footing with more long established and recognised park qualities. The fight to restore the national parks’ sonic qualities began at this point as the threat from aircraft awakened the Park Service and environmental groups to the threat posed by noise pollution. Protecting the parks meant trying to reduce or eliminate noise.

Motorised watercraft on the Colorado River

Along with aircraft, other noise pollution was becoming a problem in the national parks. The assault on the natural soundscape was fought on different fronts and the noise pollution threat to the Grand Canyon was not limited to aircraft. The use of motorised watercraft on the Colorado River in the park pitted river outfitters who used motors against campaigners who fought for an oars-only river. River trips

²¹ MC, GCNP, GRCA 102697, Sara Faldrazano/Ken Weber, Folder 2 Articles and Publications, Jon Haman to Superintendent Robert Chandler, ‘Noise Pollution Abatement’ Memorandum, 11 September 1972.

²² MC, GCNP, GRCA 66957: Aircraft Noise Complaint Letters, Grand Canyon Museum, Grand Canyon National Park. Richard Marks, Superintendent Grand Canyon National Park, ‘Samples of Aircraft Noise Complaint Letters and Visitor Comment Sheets: Grand Canyon National Park’, 1981.

had, like scenic air tours, been a relatively rare occurrence. Only 200 people had run the river through the Canyon by the 1950s. However, trips increased at an exponential rate and by the mid-1970s over 30,000 people had floated the river.²³ Between 1967 and 1972 alone there was an increase from 2,099 to 16,432 river runners.²⁴ This upsurge was linked to the availability of surplus military equipment in the post-war period. Thirty-three feet long ex-military inflatables and the introduction of outboard motors made the river more accessible to a wider cross section of the public. Increased usage altered the experience of river running as solitude deferred to an increased human presence that was exacerbated by the noise of motor-powered craft. Veteran river-runners complained that the river had become overcrowded with a carnival like atmosphere.²⁵ The sense that the river was losing its iconic status was exemplified in the August 1977 edition of *Playboy* magazine. Photographs by Richard Fegley, which featured naked women on a river trip, reinterpreted the Canyon as a place of glamour and soft pornography rather than a celebration of wilderness.²⁶ The National Park Service, environmental groups and some river runners believed that the river needed to offer more of a wilderness experience and be less of a backdrop for Hugh Hefner's playgirls.

²³ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 13, Grand Canyon River Management 1977, R. Roy Johnson, Project Director, 'Synthesis and Management Implication of the Colorado River Research Project', United States Department of the Interior, Grand Canyon National Park, September 1976.

²⁴ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996 Carton 2, Folder 15, Grand Canyon River Management 1977, National Park Service, 'Fact Sheet on the Proposed Colorado River Management Plan for Grand Canyon National Park', 13 November 1979, p. 1.

²⁵ Nash, *Wilderness and the American Mind*, p. 333.

²⁶ *Ibid*, pp. 330-339. Nash only made one reference to the controversy and the noise of motors; 'in the peak-use summer months it was hard to escape from the sight of other river boats or the sound of their outboard motors for more than a few hours.' p. 333.

The debate over motorised watercraft on the Colorado within the Grand Canyon coincided with the aircraft noise issue. Conservationists argued that motorboat operators were motivated by financial gain and that outboard motor noise had a detrimental effect on the river experience. River outfitters who promoted the use of motors and were supported by their clients and some politicians, branded the NPS and environmentalists as out of touch elitists who wanted to exclude the wider population from the river. Essentially the argument was over freedom to and freedom from. The freedom to experience the river by any means and the freedom to experience it free from mechanised noise.

The Sierra Club argued that only rowing trips offered a 'wilderness experience, the time to relax, to soak up and be part of the Canyon experience' and asked that oar-powered trips not to be disturbed by the 'din of motors.'²⁷ The NPS supported banning motors and claimed that outboard motor noise reduced the opportunity to experience solitude and wilderness. The Park Service's 1972 report, 'River Use Plan for the Colorado River in the Grand Canyon,' called for the phasing out of motorised watercraft by 1977.²⁸ The 1973 Draft Environmental Impact Statement (DEIS) stated that the objective was to 'provide an opportunity for a quality, white water, wilderness experience, and at the same time, to protect the river environment from degradation.' The report stated that the 'use of motors pollutes the river with gasoline and oil, the air with smoke, and assaults the senses with sound and should be eliminated as soon as possible from the river

²⁷ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Grand Canyon River Management 1978, Sierra Club, Grand Canyon Chapter, 'Letters Urgently Needed to Protect the Grand Canyon', April 1978.

²⁸ National Park Service, Grand Canyon 'River Use Plan', 1972.

environment.’²⁹ Howard H. Chapman, NPS Western Regional Director, argued that the agency was trying to provide experiences for all Americans. But, he added, if ‘you reduce an experience to the lowest common denominator, you deny those who have just as much right to experience solitude, quiet and time away from civilisation.’³⁰ Chapman stated that the Grand Canyon was an exceptional place, ‘the pinnacle of a river-running experience in America,’ and that the agency did not intend to ban motors in other places.³¹ If the Colorado River in the Grand Canyon could not be protected, the argument went, what could?

Opponents of the outboard ban used the ethos of the 1916 Organic Act, which stated the Park Service’s mandate was to preserve and protect the parks ‘for the benefit and enjoyment of the people,’ to argue against an oars-only policy.³² Motor-powered outfitters argued that it was the agency’s responsibility to make the national parks accessible to as many Americans as possible. It was claimed that a ban would restrict usage due to trips being more arduous, time consuming and expensive. The Organic Act placed NPS administrators in a seemingly impossible situation of how to protect natural resources while still providing access to the taxpayers who ultimately financed the parks.

Ted Hatch of River Expeditions Co., who promoted motorised river trips, argued that the NPS did not have authority to dictate the method of propulsion the

²⁹ National Park Service, ‘Draft Environmental Statement for Proposed Establishment of Visitor Use Limits on the Colorado River through Grand Canyon National Park’, 1973.

³⁰ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Howard H. Chapman, quoted in, ‘Grand Canyon Outboard Ban a Fair Solution’, *Tucson Citizen*, 3 September 1979, n.p.

³¹ *Ibid.*

³² National Park Service, ‘Organic Act’. 1916.

'public must accept.'³³ The politicians who participated in the debate backed river outfitters who used motors. Senator Jake Garn (Republican: UT) claimed the 'Park Service has an obligation to make the resources of the nation available to as wide a spectrum of the populace as possible.'³⁴ Support came from some quarters of the media. Journalist Ben Avery writing in the *Arizona Republic* echoed Garn's words and claimed the NPS was dominated by a vocal minority 'that had lost its perspective of administrating our national parks for the education, pleasure and enjoyment of the people...'³⁵ Avery accused NPS Director Whelan of acting like a "Sierra Club-type-purist.' He described a 'purist' as 'a stuffed-shirt type who believes that only purists can appreciate and enjoy such wonders' and that 'the rest of the population is a common herd that must be kept out.'³⁶ Senators Orrin Hatch (Republican: UT), Barry Goldwater (Republican: AZ) and Garn all opposed the bill and argued that it was the public's 'freedom to choose' how they experienced the river. The trio claimed that the Park Service's point that there was even in fact a problem was 'mostly a figment of the imagination' and based on 'subjective value judgements.' This highlighted the subjective nature of noise pollution, how some found noise objectionable while others did not. The elimination of motors on the river, the

³³ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Ted Hatch, 'Dear River Running Friends', March 1978.

³⁴ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Jake Garn, 'Garn Attacks Colorado River Plan' Advance for P.M. Release, 22 March 1978.

³⁵ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Ben Avery, 'Park Service Ruling on Colorado River Caters to Purists', *Arizona Republic*, 2 September 1979, p. E.16.

³⁶ Ibid.

senators argued, was not necessary for a 'wilderness river-running experience in which the natural sounds and silence of the canyon can be experienced...'³⁷

Due to the controversy of the proposed ban, a number of studies were commissioned to assess the impact motors had on the river. These studies overwhelmingly reported that noise from motorised watercraft had a detrimental effect on how visitors experienced both the Grand Canyon and the Colorado River. A 1973 study claimed that the noise from these craft masked 'the natural sounds in the Canyon and, in contrast, its almost unnatural quiet.'³⁸ Further reports reached similar conclusions. R. Roy Johnson's 1977 report argued that motorboat noise impeded normal conversation, exposed boatman to 'sound levels that border on present health conditions,' and provided 'an unnatural intrusion and distraction for participants on non-motorised trips.' He added that 'because of motor noise, passengers on motorised trips are denied the aural dimension of a wilderness almost entirely during their on-river exposure to the resource.'³⁹

Despite Ben Avery's comments about the NPS being out of touch purists, the *Arizona Republic* offered an alternative viewpoint. An article in June 1971 argued that the only opponents of banning motors on the river were the 'few commercial operators who see greater mass profits in big, overloaded sausage rafts powered

³⁷ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 17, Grand Canyon River Management 1978, 'Congressional Record: Senate 14 November 1980', Senator Hatch (Utah) proposing the amendment (supported by Senator Goldwater, AZ., Senator Garn, UT.).

³⁸ MC, CGNP, GRCA 94948, File 6, Noise Pollution, 1974-1976. D. N. Thompson, A. J. Rogers, F. Y. Borden, 'Sound-Level Evaluations of Motor Noise from Pontoon Rafts in the Grand Canyon', Colorado River Research Program Report, Technical Report No. 18, 1974.

³⁹ R. Roy Johnson, 'Synthesis and Management Implications of the Colorado River Research Program' Colorado River Research Program Report, Technical Report No. 17, 1977, pp. 23. Available from: <<https://archive.org/stream/synthesismanagem00john#page/n3/mode/2up>> [accessed 1 September 2017].

with the biggest motor allowed.’⁴⁰ Yet the Sierra Club were themselves divided over the issue, with some members deeply critical of the club’s support for a ban. The club’s Outing Committee, who participated in motorised river trips, were particularly vocal in their opposition. H. Stewart Kimball, Chairman of the Outing Committee, wrote to club president Judge Raymond Sherwin that the committee had concluded motors were necessary for safe passage of the river’s numerous rapids. He stated that the use of motors on easy stretches of water was ‘objectionable’, but that excluding motors would limit trips to the ‘very hardy.’ In arguments made by river outfitters and air tour operators, Kimball claimed ‘this again gets back to the policy of who is to be able to visit our wilderness areas, only the hardy?’⁴¹ Safety issues were questioned, but there was no particularly reliable data. John A. McComb of the Sierra Club argued that if motors were necessary for safety the NPS would have made them a requirement.⁴² The club’s board of directors tried to enforce their policy in 1973 by ordering the Outing Committee not to use the services of river outfitters who had ‘actively conducted a major campaign in opposition to Sierra Club policy with respect to the management of the Colorado River within the Grand Canyon.’ The ban included Hatch River Expeditions Co., run by Ted Hatch, who had been a leading opponent of Sierra Club policy.⁴³

⁴⁰ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 106, Folder 43, 14:3, ‘Quiet River Idea is Backed’, *Arizona Republic*, 17 June 1971.

⁴¹ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 106, Folder 43, 14:3, H. Stewart Kimball, Chairman, Outing Committee to Judge Raymond Sherwin, President Sierra Club, 11 May 1971.

⁴² BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 106, Folder 43, 14:3, John A. McComb, Southwest Representative, Sierra Club, to J. Victor Monke, 6 July 1971.

⁴³ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 106, Folder 43, 14:3, Board of Directors Meeting, the Sierra Club, 1973.

The Sierra Club continued to support the Park Service's proposed ban on motorised watercraft within the park. The club rebuffed arguments that banning motors would decrease outings and that oar-only trips would increase costs and time spent on the river. They argued tourists would want to run the river regardless of an oars-only policy. Those with limited time or finances, the club suggested, could just take shorter trips to reduce cost.⁴⁴ Meanwhile pro-motor outfitters employed the services of the Mountain States Legal Foundation (MSLF), a non-profit law firm who claimed they were 'dedicated to individual liberty, the right to own property, limited and ethical government, and the free enterprise system.'⁴⁵ The MSLF argued that enactment of the ban would render 'trips inaccessible to all but a privileged and elite few.'⁴⁶ Although often framed around personal freedoms and access for the elderly and disabled, primarily the debate was over the effect outboard motor noise had on the wilderness experience and profits of river running companies. With an established business community of commercial river runners who used motors (and helicopters to take customers out of the Canyon), there was fierce opposition to the NPS proposals.

Eventually the debate that started in 1972 came to a sudden conclusion. Congress passed Public Law 93-514 in December 1980 with an amendment that stated 'none of the funds appropriated in this Act shall be used for the implementation of any management plan for the Colorado River within Grand

⁴⁴ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Carton 106, Folder 43, 14:3, John A. McComb, Southwest Representative, Sierra Club, to J. Victor Monke, 6 July 1971.

⁴⁵ See Mountain States Legal Foundation [online]. [cited 20 June 2017]. Available from: <<https://www.mountainsstateslegal.org/>>.

⁴⁶ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 14, Ben Avery, 'Park Service Ruling on Colorado River Caters to Purists', *Arizona Republic*, 2 September 1919, p. E.16.

Canyon National Park which reduces the number of user days of passenger-launches for commercial motorised watercraft excursions...'⁴⁷ The bill's passage abruptly secured the future of outboard motors on the river and the noise they generated. The debate highlighted the chasm between what environmentalists and their opponents considered appropriate use of natural areas. The overriding theme of the debate was that once commercial interests were established they were difficult to overcome, especially when supported by influential politicians, elements of the media and public. It also highlighted the difficulties involved with trying to sway opinion over an issue that presented no long-lasting environmental damage. Public support that the Sierra Club had brought to their campaign against damming the Colorado River was not repeated in the battle between oars and motors. The public considered dams on the river a permanent scar on the landscape, whereas the ephemeral noise of outboard motors left no trace. River runners driven by profit and backed by powerful politicians won the day over the NPS and environmental campaigners.

The noisy skies above

While the Park Service were unable to ban motorised craft from the Colorado River within the Grand Canyon, they still continued with their assessment of the effects of aircraft noise on the park's soundscape. These analytical studies demonstrated that noise was a problem in the park and that it affected users,

⁴⁷ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996, Carton 2, Folder 17, Grand Canyon River Management 1978, Superintendent Richard Marks to Robert L. Elliott/Jessica Y. Elliot, Arizona Raft Adventures, Flagstaff, AZ.

especially those in the backcountry. However, any attempt to reduce aircraft noise in the Grand Canyon was seen by tour operators as a restriction on where they flew and an attack on their livelihood. Meanwhile the ultimate goal of environmental campaigners was for the park to be completely free from aircraft noise, or failing that, at least a substantial restoration of natural quiet. The NPS recognised the difficulty of reaching compromise between advocates of natural quiet and an air tour industry who were 'sensitive to any rules or regulations that might interfere with the commercial aspect, or restrictions of the use of, airspaces anywhere in the country.'⁴⁸ But Superintendent Marks was optimistic and wrote positively of the first meeting between the groups on 4 May 1981. He stated that he was encouraged by the initial meeting and believed that there could be the 'development of workable solutions.'⁴⁹ His optimism was misplaced.

The wording of the 1978 Grand Canyon Enlargement Act dictated that aircraft noise was not an issue that could be ignored. In preparation for an aircraft management plan and environmental assessment, a public review period was initiated to collate comments. With campaigners coming from diametrically opposed viewpoints, the opportunity for common ground being found was a challenging proposition. The three-month review period that finally began in September 1985 elicited a substantial response that indicated the passionate level of interest. There were some 760 written statements, petitions containing 4,300

⁴⁸ MC, GCNP, GRCA 62262: Briefing Statements, Grand Canyon Museum, Grand Canyon National Park, Briefing Statement GCNP, Issue: Aircraft Noise Management 7 May 1981.

⁴⁹ MC, GCNP, GRCA 94948 Folder 2, Briefing Statement GCNP, Issue: Aircraft Noise Management 7 May 1981.

signatures, 3,600 form letters and 216 oral statements from public meetings.⁵⁰ The Park Service split the findings into four sections; reasons for continuing or not restricting flights, reasons expressed for banning or restricting flights, specific suggestions for action and other comments.

The remarks and statements were often as far apart as the North and South Rim of the Canyon itself. Advocates of scenic air tours made comments that argued for a continuation of flights on five main grounds. These were – freedom of choice, access for all types of user groups, environmental protection, time restrictions and that air tours were the finest platform from which to consume the park. A sample of comments included; ‘aircraft flights offer a more personal experience for visitors than other means;’ ‘aircraft flights are environmentally the cleanest and least intrusive means of visitation to the park;’ ‘all visitors have the right to explore the inner canyon in the format they choose;’ ‘not everyone is capable of hiking or rafting the canyon due to time constraints, expertise, inclination, or physical ability...these people should not be limited to a view from the rim because the canyon is much more than that’ and even that ‘aircraft sound is not an intrusion, but an attribute to the canyon.’⁵¹

Campaigners for restricting or eliminating flights made polar opposite arguments. They dismissed claims that flights were a service that offered accessed for the disabled and argued instead that they were primarily taken by rich tourists. Their remarks included; ‘people have no right to see the park by air if they disturb

⁵⁰ MC, GCNP, GRCA 94948 Folder 73: Other Agencies and GRCA Aircraft Management Plan, 1986. GCMA, GCNP, ‘Summary of Public Input – February 1986’ Grand Canyon National Park.

⁵¹ Ibid.

people on the ground by doing so;’ ‘flights are only for the rich;’ ‘less than one percent of the passengers are handicapped;’ ‘because of the aircraft, GCNP should be renamed Grand Canyon Sightseeing Aerial Highway or Grand Canyon Aircraft Park.’⁵²

Arizona Governor Bruce Babbitt opposed unrestricted air tours and in his oral testimony of 30 October 1985 argued that the noise of aircraft generated ‘as much decibel noise as a ringing alarm clock or the downtown rush hour in Phoenix.’⁵³ Though opposed, Babbitt did not call for the elimination of flights but rather a ban on flights below the rim. While Babbitt did not call for a total ban, others did. Rod Smith of the Sierra Club in his statement at the NPS meeting in Phoenix in June 1986, argued that air tour operators’ claim of providing a service to the disabled was only a ‘convenient excuse.’ Smith dismissed claims that operators would go out of business, that noise did no harm and that a ban would be impossible to implement. In his closing remarks Smith called for support of the ‘Quiet Canyon Proposal’ that sought to ban all air tours at the Canyon as they, ‘detract, rather than enhance, what Grand Canyon is all about.’⁵⁴ What the review period highlighted was the divergent viewpoints involved and the difficulty of finding any common ground.

Disgruntled hikers, NPS officials and environmentalists were not the only groups who bemoaned air tours. Representatives of the Canyon’s indigenous populations claimed they were subjected to excessive aircraft noise that affected

⁵² Ibid.

⁵³ MC, GCNP, GRCA, 94948, Folder 026, Testimony of Arizona Governor Bruce Babbitt to the National Park Service Public Hearing on Air Traffic in the Grand Canyon, 30 October 1985.

⁵⁴ MC, GCNP, GRCA 94948, Folder 060, Statement of Rob Smith, Sierra Club Associate Southwest Representative, On the Grand Canyon National Park Aircraft Management Environmental Assessment, National Parks Services Meeting, Phoenix, June 11, 1986.

their lives. A letter to Superintendent Marks from the Havasupai Tribe's attorney Joe Sparks in 1985 stated the tribe were 'very concerned with the increasing number of airplane and helicopter flights over the Reservation, some of which are landing in remote sites within the Reservation boundaries.'⁵⁵ Sparks quoted the Land Use Plan (submitted to the Senate Select Committee on Indian Affairs and the House Committee on Interior and Insular Affairs in 1982) that stated 'in the interest of privacy and respect for the peace and quiet of certain special areas, the Havasupai Tribe feel no flights except emergency flights should be permitted' over certain areas and that time and altitude restrictions needed to be imposed.⁵⁶ Sparks argued that since adoption of the Land Use Plan, flights through Havasu Canyon had actually increased rather than decreased. Bighorn sheep had been herded by light aircraft to be hunted off the reservation the letter claimed, and damage had been inflicted on sacred lands. Particularly vexing to the Havasupai were the flights that occurred over Supai Village in Havasu Canyon. 'During peak season,' the tribe's attorney stated, 'there is no time during the day when aircraft noise cannot be heard. Even flights above the canyon rim reverberate and echo throughout Havasu Canyon. Such flights are often heard louder than those below the rim.'⁵⁷ The tribe's council added that it was like 'living within a fishbowl because of the great number of low level flights over their village and homes.'⁵⁸ At least for tourists the noise of aircraft only impacted their vacations, for the Havasupai aircraft noise permeated into their homes.

⁵⁵ MC, GCNP, GRCA 94948; File 073 – Other, GCMA, GCNP, Joe P Sparks of Sparks and Siler P. C. to Superintendent Marks, Grand Canyon National Park, 27 December 1985.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

Individuals and groups shared a passionate, but increasingly disparate, interest in the overflights issue. With both sides determined to get their point of view noted, the debate became increasingly acrimonious, bitter and confrontational. Polemics, verbal attacks and publicity stunts defined the campaigns in the mid-1980s as hopes of an amicable solution and non-partisan cooperation went unfulfilled. Although NPS administrators had stated it was not their intention to halt flights over the Canyon, air tour operators accused them of pursuing such a policy. Tour operators questioned NPS noise pollution statistics and argued that the agency was acting unfairly. R. J. Donaldson of the Grand Canyon Flight Operators Association (GCFOA) wrote to Superintendent Marks in 1985 and claimed that NPS statistics were 'highly questionable, and, in some cases, grossly in error,' and that the agency had failed to note 'that only thirteen written complaints in 1984' had been received. Donaldson added that the NPS 'were actively building the case for elimination of aircraft flights over or through Grand Canyon.'⁵⁹ Air tour operators were particularly annoyed by Director Mott's remarks *USA Today* on 29 August 1985 that seemed to call for a ban; the article led Donaldson to remark that the NPS were actively trying to 'support the control or cessation of aircraft flights.'⁶⁰ Donaldson argued that efforts undertaken to reduce the sonic impact of air tours, which included quieter aircraft, alternative flight paths and altitudes, had not been recognised by the NPS. The Park Service had the unenviable task of trying to find a working solution between groups with distinctly different opinions.

⁵⁹ MC, GCNP, GRCA 94948, File 24, Grand Canyon Flight Operators Association to Superintendent Marks, 3 September 1985.

⁶⁰ MC, GCNP, GRCA 94948, File 24, Bob Donaldson to Superintendent Marks, 3 September 1985.

Some of the protests conducted by environmental campaigners exasperated NPS administrators. On 30 June 1985 Jan Newman and Dana Morris, pilots from Grand Canyon Helicopters, were conducting an air tour when they saw twenty protestors gathered by Native American ruins at Point Sublime. The pilots stated that as they approached the ruins they were met by 'obscene gestures' and people 'throwing rocks at the helicopters,' claims that were denied by the protestors and were never substantiated.⁶¹ A further incident occurred over Labor Weekend in 1985 when the National Parks Conservation Association (NPCA) demonstrated against air tour operators by hanging banners off Point Sublime and distributing what Superintendent Marks described as 'erroneous information.' Marks stated that the protest threatened to destroy the working relationship and that he was concerned over how the event had 'affected the air tour operator's previously cooperative attitude and to what extent the different interests groups might now be polarised.'⁶² These events demonstrated the bitterness that had developed despite Marks' hope that an amicable compromise could be reached.

Both environmentalists and air tour operators used propaganda in an effort to gain public support, as the future of the park's natural soundscape became a battle of accusations and hyperbole. Air tour companies contended that they were offering more than just flights over the park. They argued that air tours offered a service to the elderly and disabled, were the only way to truly experience, and provided the most environmentally friendly-option to see the park. They added that

⁶¹ National Park Service, Case Incident Record 851736, 30 June 1985, from the archival material of Sierra Club member Rob Smith given to Sierra Club member Dick Hingson. Received via email, 18 September 2017.

⁶² MC, GCNP, GRCA 94948, File 24, Richard Marks to Russ Butcher, Southwest and California.

air tours were an integral part of Grand Canyon National Park due to their continued flying since the 1920s. Far from being detrimental to other users, operators claimed that they were in fact good neighbours to other park users.

Bob Donaldson of Grand Canyon Airlines claimed that there was no real means by which the 'elderly, young, handicapped or those too short of free time to experience the Grand Canyon other than by a memorable flight.'⁶³ Various travel agents and aircraft industry companies wrote in support of air tours for these reasons. Martha Fink of Midtown Travel Centres, Palo Alto, argued air tours offered a 'unique product' and were needed for foreign visitors on 'limited time schedules' who would not have been able to see the park otherwise.⁶⁴ Howard Lewis of Tour West agreed and stated that air tour companies offered 'a very special and unique service.'⁶⁵ Air tour companies received support from disabled groups. Calvin J. Burt of International Handicapped Net wrote to NPS Director Mott and argued that restricting flights would be a 'gross injustice to a large segment of our society' and that without air tours they would 'have no other way in which to explore and enjoy one of the most beautiful natural wonders of the world.'⁶⁶ H. Latham Breunig of the National Council on the Handicapped agreed that cessation of tour flights would cause 'denial of the rights of disabled Americans' and Richard Johnson of the Non-Commissioned Officers Association urged Director Mott to 'oppose excessive

⁶³ MC, GCNP, GRCA 94948, File 24, Bob Donaldson to Superintendent Marks, 3 September 1985.

⁶⁴ MC, GCNP, GRCA 94948, File 064, Air Tours and Travel Agencies, Martha Fink, Midtown Travel Centres to Superintendent Marks, 18 July 1986.

⁶⁵ MC, GCNP, GRCA 94948, File 064, Air Tours and Travel Agencies, Howard Lewis, V.P. Tour West Inc. Whitewater Adventures to Superintendent Marks, 18 July 1986.

⁶⁶ MC, GCNP, GRCA 94948, File 064, Air Tours and Travel Agencies, Calvin J. Burt, Director: International Handicapped Net, Missouri, to NPS Director William Mott, 24 October 1985.

restrictions on air traffic over the park' for the benefit of 'veterans and handicapped citizens.'⁶⁷

Supporters of natural quiet met the arguments that air tours provided a service to disabled people with derision. An article in the *Arizona Republic* claimed the argument that disabled people who were unable to hike or ride a mule into the Canyon were being 'cheated,' was 'balderdash.' The 'aging and handicapped' were being treated as martyrs the author continued, and asked 'should we demand that NASA run shuttles for us who're deprived?'⁶⁸ Environmental campaigners tried to demonstrate that claims of providing a service to disabled persons were erroneous and they took photographs of air tour company vehicles they claimed were deliberately parked in disabled parking bays to make their point.⁶⁹

Keen to win their campaign, air tour operators tried to demonstrate that there was wide public support for scenic flights. They handed out comment cards to air tourists for them to forward onto Park Superintendent Marks. Scenic Airlines handed out these survey cards to passengers over a two-month period during 1985. The intention was that the results would be included in the decision-making process. The purpose was to demonstrate that many tourists took air tours because they were incapable of hiking. Rick L. Nord of Scenic Airlines wrote to Superintendent Marks that the comment cards demonstrated an 'undeniable majority of support of

⁶⁷ MC, GCNP, GRCA 94948, File 064, Air Tours and Travel Agencies, H. Latham Breunig, National Council on the Handicapped to NPS Director Mott, 24 October 1985; Richard Johnson Jr., Director of Legislative Affairs, Non-Commissioned Officers Association of the United States of America to NPS Director Mott, N.D.

⁶⁸ MC, GCNP, GRCA 94948, File 067, Pictures and Articles, 1985 – 1985, 'Lets Let Mother Nature Win Furor Over Tour Flights Into Canyon' *Arizona Republic*, 6 November 1985, n.p.

⁶⁹ MC, GCNP, GRCA 94948, File 026, Rod Smith photograph of company vehicles in disabled parking spaces.

Grand Canyon air tours.’⁷⁰ This was unsurprising as these were the very tourists that air operators catered for and failed to represent a true cross-section of park visitors. Tour passengers were told that the NPS were trying to deny them their choice to see the Canyon from the air. Air tourists were informed in 1985 that the NPS were ‘trying to deny them the right to such a wonderful experience’ and actively tried to get passengers to sign a petition objecting to the Park Services’ proposals. Petitions were similarly placed in the petrol station at Tusayan, just outside of the park, urging customers to support air tours at the Canyon.⁷¹

In a further effort to gain support for the continuation of air tours, operators argued that their businesses offered the most environmentally friendly way to see the park. Air tour companies embarked on a campaign to convince the public of their environmental credentials. They argued that air tours had no physical impact on the Canyon (ignoring the fact that there had been numerous accidents) and therefore the flights should continue. Papillon Airways wrote in the 1980s that flying preserved the Grand Canyon in its ‘original, pristine condition for millions of future visitors.’⁷² In-flight tour narrations offered the same message that flying was the most environmentally friendly means by which to see the park. Scenic Airline’s 1985 tour narration claimed that ‘aircraft leave virtually no lasting environmental consequence nor the slightest trace of man in Grand Canyon.’ Scenic Airlines were, the narration continued, ‘good neighbours to all visitors of Grand Canyon, including

⁷⁰ MC, GCNP, GRCA 102697, Folder 11, Scenic Airlines Comments Cards, Rick L. Nord, Vice President of Marketing, Scenic Airlines, to Richard Marks, Superintendent Grand Canyon National Park, 11 December 1985.

⁷¹ MC, GCNP, GRCA 94948, Folder 024, Susan (surname unknown) to Superintendent Marks, 23 September 1985.

⁷² MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., Papillon (Helicopter Tour Brochure), circa 1980s.

those who wish to interpret their experience in the solitude of the many remote backcountry trails and side canyons as well as the river itself.⁷³ However, NPS officials contested these claims and responded that backcountry users had expressed concern over the tours leaving the 'trace of man' through the noise generated by aircraft.⁷⁴ Air tour leaders attacked the arguments made by the NPS and environmental groups through a number of carefully crafted messages in order to keep their aircraft flying tourists and secure the future of flights at the Grand Canyon.

Although many visitors complained about aircraft noise, an overwhelming number of tourists who took air tours enjoyed the experience. The number of scenic flights being taken by tourists had increased exponentially, in what was a testament to their growing popularity. Tourists Harold and Betsey Cutler from Massachusetts visited the Grand Canyon with friends in 1985 and described their air tour as 'an impressive way to discover the scale and beauty of the Canyon...to see some of the features of the Canyon which are not easily seen during a ground visit.'⁷⁵ Scott Hunter from Arizona took an air tour in 1985 and wrote it 'was a very enjoyable experience and we saw more of the canyon than we could have seen through any other way.'⁷⁶ These remarks were typical of those made by air tourists.

Central to the defence made by air tour companies was the argument that the Grand Canyon was above everything else a visual experience. Their

⁷³ MC, GCNP, GRCA 94948, Folder 24, Scenic Airline, Grand Canyon Tour Narration, September 1985.

⁷⁴ MC, GCNP, GRCA 94948, Folder 24, 'Comments and Suggestions by Grand Canyon National Park on Scenic Airlines Tour Narration', September 1985.

⁷⁵ MC, GCNP, GRCA 94948 Folder 26: Docs and Pics re: GRCA O.F. 1985, Betsey Cutler & Harold Cutler to Superintendent Marks, 20 October 1985.

⁷⁶ MC, GCNP, GRCA 94948 Folder 26, Scott Hunter to Superintendent Marks, 26 October 1985.

advertisements claimed that the Canyon was experienced at its best when seen from the skies above. Air Grand Canyon wrote that their tour offered a flight over a 'photographer's paradise' just as the 'The Eagle Sees It.'⁷⁷ Scenic Airlines promised travellers that they would experience the 'most spectacular flight in the world' with the added thrill of travelling 'through the formidable mouth of the Grand Canyon, actually flying below the Rim and between the massive canyon walls.'⁷⁸ The argument that air tours offered a thrilling experience was a common theme amongst operators. Grand Canyon Helicopters described the 'thrill' of first encountering the Canyon as their tour descended '1500 feet below the rim.' Their promotional brochure claimed, 'This is the ONLY way to really see the Grand Canyon' (emphasis in original text), in disregard to those who hiked, camped out in the backcountry and ran the rapids. Flights were defended through the claim that tourists who experienced the Canyon by any other means did not see the park from its best vantage point.

Operators were keen to stress the history of air tours at the Grand Canyon in a bid to claim that their businesses were a part of the human experience of the park. Grand Canyon Airlines promoted their 60th anniversary in 1987 and claimed that they had 'introduced visitors to the Canyon's hidden secrets when commercial aviation was in its infancy.'⁷⁹ To demonstrate their historic credentials they brought the Ford Tri-Motor back into service for nostalgic air tours in 1976. The 'Tin Goose',

⁷⁷ MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., 'Grand Canyon as the Eagle Sees It!' *Air Grand Canyon* (promotional brochure) circa mid-1970s.

⁷⁸ MC, GCNP, GRCA 102696, Folder 14, 'Grand Canyon: For the Greatest Sightseeing Adventure of your Lifetime', *Scenic Airlines* (promotional brochure) circa early 1980s.

⁷⁹ MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., 'Then & Now: 1927 to 1987', *Grand Canyon Airlines*, (1987).

as it was known, was flown to celebrate the nation's bicentennial and offered flights across the canyon and a one-hour tour.⁸⁰ *Sunset Magazine* argued that slow speed was the planes greatest virtue as it made for an easy sightseeing trip.⁸¹ Nostalgia, it was argued, was performed slowly.

Air tour companies even used sound as a defence. They emphasised that their aircraft provided customers with a quiet cabin space, freeing at least those in the aircraft from the noise of their machines. Grand Canyon Airlines claimed that their Vistaliner aircraft possessed 'whisper-quiet climate-controlled cabins,' and AirStar Helicopters wrote that they provided the 'SMOTHEST and QUIETEST RIDE of any tour airplane or helicopter flying the Grand Canyon (emphasis in original text).'⁸² Flights included tour narration by pilots or were pre-recorded. To sonically enhance the trip and to reduce exposure to engine noise, operators piped music into tourists' noise cancelling headphones. Papillon Airways specified that their helicopters featured 'dramatic stereo music broadcast over world-renowned stereophonic Aviation Headsets – setting the perfect stage for informative narrations.' Flyers were assured that with the 'atmosphere firmly in place', they would feel 'overcome by the mood and swept away by the beauty...'⁸³

Unable to provide tourists with the awe-inspiring and sublime sounds of nature, operators tried to create a sublime soundscape through music. Wagner's

⁸⁰ MC, GCNP, GRCA 75813, Airplanes in GC, Brochures, 'Tri-Motor Due Back at Northland Airport', *Arizona Daily Sun*, 7 May 1976, n.p.

⁸¹ MC, GCNP, GRCA 75813, Airplanes in GC, Brochures, 'Over Grand Canyon in an Elderly Ford' *Sunset Magazine*, n.p. May 1976.

⁸² MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., 'Affordable Air Tours' Grand Canyon Airlines (circa 1980) 'Fly the Grand Canyon's Magic Carpet', AirStar Helicopters, (circa 1980), (promotional brochures).

⁸³ MC, GCNP, GRCA 102696, Folder 14, Papillon Grand Canyon Helicopters' (promotional brochure) circa early-1980s.

Flight of the Valkyries was boomed into tourists' ears as helicopters flew over the Canyon. The music seemed to be suitably dramatic and awe inspiring; the tour helicopters issuing out noise over the Canyon instead of raining napalm down on Vietnamese villages.⁸⁴ Grand Canyon Helicopters went as far to claim that their tour, which included 'interludes of dramatic stereophonic music,' was a 'total experience of sight and sound.'⁸⁵ Tour operators boldly stated that travellers would even experience the silence of the Canyon. Papillon Helicopters wrote that air tourists would feel the 'thrill of being suspended in silence,' as they embarked on an 'unforgettable journey.'⁸⁶ Grand Canyon Helicopters claimed that air tourists could 'imagine flying over a peaceful pine forest, when suddenly, the ground falls away beneath you.'⁸⁷ The irony of the soundscape of the 'peaceful pine forest' being disturbed by the helicopter would not have been lost on backcountry users.

What the debate was about, according to Superintendent Marks, was 'the age-old conflict between natural preservation and human enjoyment of the resource' and what the balance was between these two often-conflicting management issues.⁸⁸ Marks was frustrated that the NPS did not have either the power or the resources to effectively manage the air tour issue and reduce noise

⁸⁴ There are several references to Wagner's *Flight of the Valkyries* being played as tour aircraft fly over the Grand Canyon. See, Elaine McArdle [online]. 'Soaring Over the Desert Skies: Las Vegas and Grand Canyon Helicopter Tour!' *The Whole World a Playground*. [cited 12 October 2017]. Available from: <<https://www.thewholeworldisplayground.com/soaring-desert-skies-las-vegas-grand-canyon-helicopter-tour/>>.

⁸⁵ MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., 'See the Greatest Earth on Show...From the Best Seat in the House' *Grand Canyon Helicopters* (promotional brochure circa 1980).

⁸⁶ MC, GCNP, GRCA 102696, Folder 14, Brochures and Air Tour Info., 'Take off to Adventure!' Papillon Helicopters.

⁸⁷ *Ibid.*

⁸⁸ T. R. Reid, 'The Grand Canyon Suite: Is it Whups, Buzzes or Silence?', *Washington Post*, 7 April 1986, p. 34.

pollution in the park. He sardonically added that the agency did not 'have an air force.'⁸⁹

By the mid-1980s conservation groups had come to the conclusion that an outright ban on overflights was beyond their grasp. With an entrenched air tour industry, a NPS that was not in a position to regulate flights and a comparative lack of public support (as opposed to the dam campaign), reducing the impact of aircraft noise became the main objective. The NPCA stated that realistically all they hoped for were minimum altitude restrictions, flight zones that avoided areas popular with hikers, and a ban on flights during certain times of the day and year.⁹⁰ Rod Smith of the Sierra Club echoed the NPCA's comments and wrote that he thought environmentalists had lost the argument that the Grand Canyon should be free from aircraft. He stated that the Sierra Club still wanted to 'establish that silence' was a resource and that 'seeing the Grand Canyon includes hearing the silence.'⁹¹ This did not however mean the end of campaigns or the acrimonious debate.

The National Park Services' 'Aircraft Management Plan: Environmental Assessment,' which had instigated the fervent campaigns for and against air tours, was released in May 1986. The report stated that the assessment was needed to meet the requirements of the 1916 Organic Act, the Grand Canyon Enlargement Act (PL 93-620) and the Redwood Act (PL 95-250) of 1978, which highlighted the need to conserve 'the values and purposes for which the park was established.'⁹² The

⁸⁹ Ibid.

⁹⁰ Kathryn Kahler, 'Airborne Views: The Pure Silence of the Grand Canyon is Shattered by Constant Overflights', *National Parks Magazine*, (March/April 1986) 16-19 (p. 19).

⁹¹ T. R. Reid, 'The Grand Canyon Suite: Is it Whups, Buzzes or Silence?' p. 34.

⁹² National Park Service, 'Aircraft Management Plan Environmental Assessment: Grand Canyon National Park' May 1986, p. 1.

Redwood Act was an extension and clarification of the 1916 Organic Act that placed the conservation of national park resources central to the agency's remit. Through the Aircraft Management Plan the NPS determined that 'aircraft activity occurring over or within the park {were} currently causing a significant adverse effect on the natural quiet and experience of the park...'⁹³ The report concluded that the effects of aircraft use at Grand Canyon was the 'number one resource management issue in the GCNP Natural and Cultural Resource Management Plan.'⁹⁴ The Grand Canyon's soundscape, which had previously not been considered as even under threat, had become the biggest issue that the park faced.

The 1986 Environmental Assessment (EA) defined natural quiet as the absence of man-made noise and argued that it was an 'integral part of a visitor's recreational experience in the park'. But the EA stated that 'natural quiet is not a necessary part of the recreational experience of some park visitors and not all visitors are sensitive to aircraft sounds.'⁹⁵ The EA acknowledged the subjective nature of aircraft noise in the Canyon and that awareness to noise was varied. People who came from a loud environment may not have been as consciously aware of aircraft noise as those who came from quiet areas. Looking down into the vastness of the Canyon could also distract visitors as they were consumed by the visual spectacle of the landscape. The economic value of the air tour business was acknowledged and it was noted that several hundred jobs were dependent on the

<<https://www.gcmrc.gov/library/reports/GrandCanyon/GCNP1986b.pdf>> [accessed 20 February 2015]; other cited acts in the report were the National Environmental Policy Act (1969), Noise Control Act (1972), Wilderness Act (1964), NPS Management Policies (1981), Title 36, Code of Federal Regulations, Chapter 1, Part 2, Section 2.17, and GCNP Final Master Plan (1976).

⁹³ National Park Service, 'Aircraft Management Plan Environmental Assessment: Grand Canyon National Park' May 1986, p. 1.

⁹⁴ Ibid.

⁹⁵ Ibid.

businesses. Six plans were proposed in the report that ranged from taking ‘no action’ to prohibiting flights from going lower than two thousand feet above the rim with flight free areas.⁹⁶ It was also made clear in the assessment that the ‘total elimination of aircraft flights over the park {was} not a reasonable alternative.’⁹⁷ The quest for quiet was unable to silence powerful business interests.

The debate over aircraft noise was thrust into the public spotlight after a tragic crash between two air tours in 1986. Aircraft crashes at the Canyon were not a rarity; a lack of radar, challenging flying conditions and numerous aircraft within a contained space, increased the risk of accidents. In 1980 eight people perished in a Cessna operated by Scenic Airline, and ten died in an air tour operation by Las Vegas Airlines flying a Grand Canyon Tour, while three were killed in 1984 in a helicopter operated by Bauer Helicopters flying out of Las Vegas. The infamous 1986 crash involved a fixed wing (Twin Otter) plane flown by Grand Canyon Airlines and a Jet Ranger helicopter operated by Helitech. The collision between the two aircraft resulted in the deaths of all twenty-five people on board. Aircraft in the Canyon operated under a ‘see and avoid’ policy that in this instance tragically failed. The investigation into the crash conducted by the National Transport Safety Board failed to reach a conclusion over why the pilots failed to see each other. Partial blame was given to the FAA for its failure to ‘exercise its overflight responsibilities’ and the National Park Service’s influence on the routes chosen by scenic air tour operators.⁹⁸

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ MC, GCNP, GRCA 94948, File 062, National Transportation Safety Board, Washington D.C., PB87-910403 ‘Aircraft Accident Report: Grand Canyon Airlines, Inc., and Helitech, Inc., Grand Canyon National Park June 18, 1986’.

Newspapers quickly picked up on the story; the heady cocktail of tragedy and an icon of American nature ensured numerous column inches were dedicated to the crash. Newspaper articles centred on three main themes; loss of life, the drive for profit and the noise generated by air tours in the park. The *Rocky Mountain News* framed the story under the header 'Profit and Nature Collide Daily Over Grand Canyon.' The article bemoaned the lack of regulation of flights and argued that voluntary flight restrictions were ignored by pilots who for the right price would 'dive into the canyon' so tourists could get a look at the Colorado Rapids. The author argued that the FAA and NPS needed to review their responsibilities and that the 'first of these is to fully maintain the tranquillity of the national parks.'⁹⁹

Newspapers highlighted the issue of noise pollution and argued that the Canyon's airspace was poorly managed. Iver Paterson wrote in the *New York Times* that hikers encountered a park that was in disarray and was no longer a celebration of nature. He described 'air-tour helicopters hovering over the Colorado River, jet fighter pilots joyriding through the twisting canyon maze and fixed-wing sightseeing craft droning by overhead.' Paterson provided an account of tourists' experiences at Hermit's Rest and how aircraft noise affected their ability to listen to the Canyon's natural sounds. Conversation was 'muffled by the throb of a helicopter', Paterson recalled, as it flew over the South Rim and dropped down beneath the rim to give passengers 'a close look at a raft on the Colorado.' It was a stunning view for those on the helicopter, he added, 'but for the people on the overlook, the noise of the helicopter's descent, amplified by the canyon walls destroyed the canyon's historic

⁹⁹ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996 Carton 1, Folder 42, Grand Canyon Airplanes 1985-1988 Robert C. Maynard, 'Profit and Nature Collide Over Grand Canyon', *Rocky Mountain News*, 26 June 1986, n.p.

silence.’ The key phrase that Petersen used was ‘historic silence.’ He argued that ‘silence’ was an integral part of the Canyon’s identity and that it could no longer be experienced due to air tours.

Petersen added what he considered was really at stake for air tour operators. They were not in the business of celebrating the Canyon and its silence, but that they were driven by the lure ‘millions of dollars in investment and profit.’¹⁰⁰ The prospect of earning vast amounts of money, he claimed, overrode tourists’ enjoyment of the park’s aural qualities. The *Rocky Mountain News* took a different approach and focused on the potential damage to wildlife and archaeological ruins from aircraft noise. The paper argued that it was not only humans that suffered from intrusive noise. Peregrine falcons, mountain lions and big-horn sheep, the *Rocky Mountain News* claimed, were also ‘victims’ in a Grand Canyon that was ‘desecrated by {the} cacophony of civilisation.’¹⁰¹ From the nation’s press there came a sense that air tour operators were driven by profit not a love of and respect for the Grand Canyon.

After the 1986 EA, Superintendent Marks called for a cessation of flights below the Canyon’s rim and the creation of flight free zones to reduce the sonic impact of aircraft throughout the park.¹⁰² These restrictions aimed to reduce tourists’ exposure to noise by moving aircraft to less visited areas of the park.

¹⁰⁰ Iver Peterson, ‘Noise as Well as Safety at Issue in park Flights’, *New York Times*, 19 June 1986, p. A18
<<http://search.proquest.com.chain.kent.ac.uk/hnpnewyorktimes/docview/110998643/fulltextPDF/31567F900AC340EEPQ/1?accountid=7408>> [accessed 5 July 2016].

¹⁰¹ BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996 Carton 1, Folder 42, Grand Canyon Airplanes 1985-1988, ‘Grand Canyon Desecrated by Cacophony of Civilization’, *Rocky Mountain News*, 30 June 1986, n.p.

¹⁰² BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996 Carton 1, Folder 36, Alerts 1996-1998 Rob Smith (Sierra Club) & Jim Norton (Wilderness Society) to Grand Canyon Air Force, 22 September 1986.

However, the policy pursued by Marks and the NPS was at odds with those of both the Secretary of the Interior, Donald Hodel, who was responsible for the NPS, and Assistant Secretary William P. Horn (Fish and Wildlife). These Reagan administration appointees were more sympathetic to air tour operators and piled pressure onto NPS leaders to accommodate air tour operators' wishes. The independence of the NPS from the Interior Department was challenged during the Reagan administration, as the department became increasingly interventionist. Hodel pushed an agenda that framed the air tour issue not in terms of a threat to a park resource, as NPS administrators had, but rather as an issue of user-conflict. 'The battle isn't over destroying the park,' Hodel claimed, 'it is over whether or not the 30,000 or 40,000 [canyon hikers]...are bothered or inconvenienced in their use of the park by the 400,000 people who view the park from the air.'¹⁰³ Hodel's dismissive argument was that the experience of air tourists outweighed that of hikers, simply as there were more of them. Hodel did not consider natural quiet a resource in need of protection. His views echoed the beliefs of the Reagan administration that it was not the place of the federal government to dictate to people how they ran their lives. Director Mott made it clear that his thoughts were not in line with those of Hodel. Mott wrote that he believed natural quiet was as "important as the trees and the animals," and added 'with a shrug, 'I don't think they [Hodel and Horn] recognise that silence or the lack of noise is a factor in the national park system.'¹⁰⁴

Assistant Secretary Horn, in strong support of Hodel, altered drafts of the National Parks Overflights Act to reduce the protection afforded to natural quiet.

¹⁰³ Ronald Taylor, 'Interior Chief, Parks Director Locked in Struggle for Control of U.S. Policies', *Los Angeles Times*, 24 May 1987, p. 3.

¹⁰⁴ *Ibid*, p. 40.

The NPS specifically noted the need to protect natural quiet in Objective One of the draft Act, which stated there was a need to ‘protect the public health, welfare and safety, and the natural environment within the park, including the substantial restoration of the natural quiet and visitor experience.’¹⁰⁵ Yet Horn altered the text so that it read ‘to protect the public health, welfare, and safety, and the resources and natural environment within the park,’ removing all reference to natural quiet. Horn altered Objective Two of the draft as well, which called for ‘a quality aerial viewing experience for park visitors when consistent with the resource protection mandate specified in the 1916 National Park Service Organic Act and the 1978 Public Law 95-620,’ to ‘to provide an opportunity for a quality aerial viewing experience for park visitors through a balanced approach that avoids major economic dislocation of the existing air tour industry.’¹⁰⁶ Horn’s alterations revealed that his sympathies laid with air tour operators, not with supporting the NPS and their objective of protecting natural quiet and park resources at the Grand Canyon. Comments made by both Hodel and Horn ran at odds to Park Service research, opinion and interpretation of legislation. Whereas the NPS specifically attempted to protect natural quiet, Hodel and Horn moved to push the business interests of air tour operators to the fore; policies consistent with the anti-environment stance of the Reagan Administration.

¹⁰⁵ MC, GCNP, GRCA 94948, Grand Canyon National Park Aircraft Management Recommendation, draft, Objective One, 30 September 1987, p. 2, as quoted in Dickson J. Hingson, ‘Natural Quiet Resource Management (Overflight Noise) at Grand Canyon National Park: The Reagan Torpedo, 1986-1987’, pp. 251-257 (254) in *A Rendezvous of Grand Canyon Historians: Ideas, Arguments, and First-Person Accounts* (Flagstaff, Grand Canyon Historical Society, 2013).

¹⁰⁶ MC, GCNP, GRCA 94948, William Horn, Assistant Department of Interior Secretary for Fish, Parks and Wildlife to T. Allan McArtor, FAA Administration, 9 December 1987, as quoted in Dickson J. Hingson, ‘Natural Quiet Resource Management (Overflight Noise) at Grand Canyon National Park: The Reagan Torpedo, 1986-1987’, pp. 251-257 (254-255).

Air tour operators saw in Secretary Hodel an influential person who they considered sympathetic to their cause. John Siebold of Scenic Airlines wrote to Hodel that the NPS and environmental groups were trying to either eliminate or restrict air tours at the Canyon and that they needed their case to be presented.¹⁰⁷ Siebold sensed that an administration that leaned towards business and considered environmental legislation a burden on the economy would be keen to speak up on their behalf.¹⁰⁸ Air tour operators were not disappointed. In a memorandum to Mott, Hodel pressured the NPS Director and claimed that a report by the NPS on Grand Canyon solitude was a fabrication and 'should be redone honestly.' Hodel added that 'preparation of such a report containing such egregious misrepresentation is unprofessional and inappropriate...and an embarrassment to the NPS.'¹⁰⁹ Hodel referred to a report by the Inspector General, yet the report stated though 'some statistical data was inaccurately presented' overall, 'despite the factual errors and misstatements' the study substantiated claims that flights had a 'significant, adverse effect on the natural quiet and experience of the park.'¹¹⁰ Senator McCain wrote to Hodel and expressed his concern that the Secretary was set on overriding the reports and recommendations of the NPS. McCain wrote that he was worried Hodel would, 'throw out all previous Park Service action on this matter and that your office does not perceive any problem at the Park.'¹¹¹

¹⁰⁷ MC, GCNP, GRCA 94948, Folder 060, John Siebold to Donald Hodel, 4 October 1985.

¹⁰⁸ Riley E. Dunlap & Araon M. McCright, 'A Widening Gap: Republican and Democratic Views on Climate Change' *Environment: Science and Policy for Sustainable Development*, 50.5, 26-35 (p. 26).

¹⁰⁹ MC, GCNP, GRCA 94948, Folder 060, Donald Paul Hodel to William Penn Mott, 5 November 1986.

¹¹⁰ Ronald Taylor, 'Interior Chief, Parks Director Locked in Struggle for Control of U.S. Policies', *Los Angeles Times*, 24 May 1987, p. 40.

¹¹¹ MC, GCNP, GRCA 94948, Folder 074, John McCain to Donald Hodel, 27 October 1986.

Over the objection of Hodel and Horn, Congress passed the act and President Reagan signed (despite fears of a veto), Public Law 100-91, the National Parks Overflights Act in 1987. However the Act did not eliminate aircraft from the Grand Canyon, and certainly fell far short of the 'Quiet Canyon Proposal.' Environmental groups were nonetheless pleased. Rob Smith of the Sierra Club wrote that Congress had voted, 'over the strident opposition of the Reagan Administration, to expand the realm of protection for parks and wilderness to include the natural quiet is a major step forward.'¹¹² Smith urged supporters of the bill to write letters of thanks to key sponsors of the legislation in both the House and Senate; Representative Tony Coelho (D-CA), Representative Mo Udall (D-CA), Senator Spark Matsunaga (D-HI) and particularly Senator John McCain (R-AZ). Congress had needed to take action, Mo Udall stated, as 'the actions, or better put the inactions, of the Interior Department and the FAA to do anything meaningful to protect the park and the public have forced Congress to step-in.'¹¹³

Public Law 100-91 was significant as it legally recognised the importance of natural quiet as a protected resource of the National Park system. The Act stated that noise from aircraft over the park caused a 'significant adverse effect on the natural quiet and experience of the park.' It continued that it provided authority through recommendations for the prohibition of flights below the rim and for designated flight free zones (special exemptions applied, for example, for purposes

¹¹² BL, UC, Berkeley, Sierra Club Southwest Office Records 1900-2000 BANC MSS 98/134c Series 1, Arizona, 1900-1996 Carton 1, Folder 41, Airspace Litigation 1986-1988, Rob Smith to National Park Overflight Phaseout Committee, Sierra Club, 4 August 1987.

¹¹³ 'Preserving the "Crown Jewel"', *Arizona Republic*, 4 August 1987, p. A10.

of administration and emergency operations.)¹¹⁴ The Act called for a study and review of the success of the flight restrictions and stated that within two years the Secretary had to submit to Congress a report on whether the legislation had succeeded in ‘substantially restoring the natural quiet in the park.’ Though the Grand Canyon had been the focal point of environmental groups’ activism, the Act had influence beyond the Canyon. At Haleakala National Park, Hawaii, restrictions were placed on flights to 9,500 feet above mean sea level. In Yosemite National Park, which had a long history of issues relating initially to military aircraft and then air tours, it became unlawful to fly at an altitude of less than 2,000 feet over the surface of the park. These restrictions were implemented during a ‘study and review’ period to monitor to what extent a substantial restoration of natural quiet had been achieved. In June 1988, the FAA published SFAR 50-2, which revised the flight procedures in Grand Canyon National Park to reflect the Overflights Act.¹¹⁵

The problem with the Overflights Act of 1987 was that Congress clearly intended that overflights over the Grand Canyon would continue. Although it was recognised that air tours damaged a park resource, natural quiet, it still legislated for their continuation. Environmental groups and the National Park Service, which had publically stated that air tours were detrimental to the park experience, were unable to ground scenic flights. Air tours were rerouted over less used areas, but still affected those who sought solitude and tranquillity in the backcountry. Arguably these backcountry users were the most susceptible to aircraft noise as they were in

¹¹⁴ PL. 100-91 The National Parks Overflight Act of 1987.

¹¹⁵ SFAR 50-2 (53 Federal Register 20264), June 1988. Extended the Special Flight Rules Area, prohibited flights below 14,499 feet MSL, established four flight-free zones, set special routes for commercial sightseeing operators, required certain terrain avoidance and communication requirements.

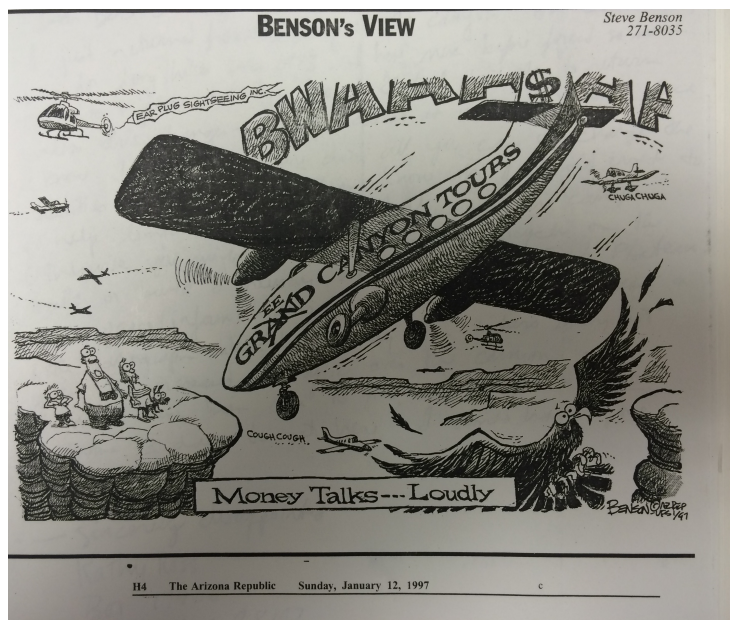
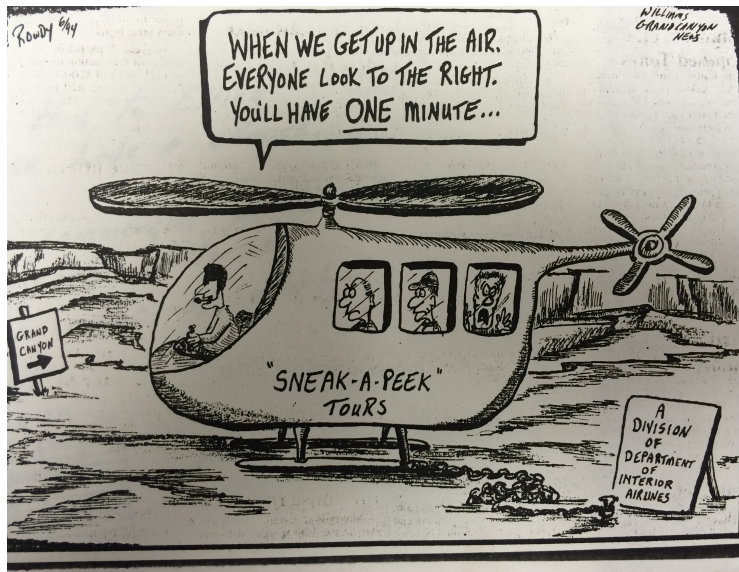
the quietest areas of the park, away from the urban sounds of the South Rim. They also were the park users who most actively sought out the Canyon's remotest areas in pursuit of adventure, solitude and a wilderness experience.

In 1994 the National Park Service's 'Report to Congress on Effects of Aircraft Overflights on the National Park System' stated that managers believed that 'approximately 30% of all National Park System units have aircraft overflight problems [...] about three-fourths of the total NPS administered acreage, and about half the total park visits.'¹¹⁶ The report claimed that in terms of visitor enjoyment natural quiet was 'about as important as viewing natural scenery as a reason for visiting national parks.'¹¹⁷ The success of SFAR (2) in 'substantially restoring natural quiet' at the Grand Canyon was evaluated in the report. Despite some progress in reducing aircraft noise through flight free zones and minimum altitudes, the report stated that improvements had ultimately proved limited. 'Aircraft of all types may still be heard for some percent of the time at virtually all areas,' the report noted, and 'these results suggest that a substantial restoration of natural quiet has not been achieved for large segments of the Canyon.'¹¹⁸ Essentially the Overflights Act removed the noise of aircraft from the more densely visited areas of the park and pushed the noise into other areas.

¹¹⁶ National Park Service, 'Report to Congress on Effects of Aircraft Overflights on the National Park System. Prepared Pursuant to Public Law 100-91. The National Parks Overflight Act of 1987', 12 September 1994.

¹¹⁷ *Ibid*, (6.2.1).

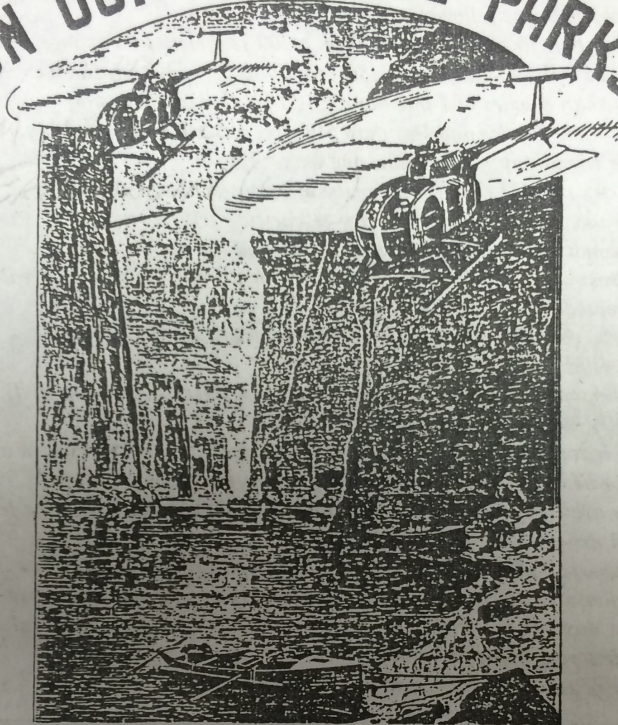
¹¹⁸ *Ibid*, (9.3).



16 & 17. Cartoons from the mid to late-1990s - impact of air tour noise on the Grand Canyon.¹¹⁹

¹¹⁹ MC, GCNP, GRCA 102696, Folder 13.

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18. Sierra Club, 'Stop the Air Raid on our National Parks', circa 1990.¹²⁰

¹²⁰ Ibid.

The report clearly detailed the Park Service's responsibilities in respect of natural quiet. It stated that the 'concept of natural quiet and its importance as a resource is embodied in the 1916 NPS Organic Act as amended' and that Congress 'embedded the concept into two major laws.'¹²¹ Within the 1975 Enlargement Act Congress 'provided direct and explicit guidance,' the NPS management policy of 1988 specifically stated natural quiet as a park resource, and NPS-77, and the Natural Resource Management Guidelines stated, 'aesthetic values as a value [...] that is attributed by people to nature, unmanipulated conditions and is perceived through the senses – by seeing, hearing, touching, smelling, and tasting.'¹²² The report concluded that, 'preserving natural quiet is an integral part of the mission of the NPS. This is confirmed in law, policy, and the belief of NPS managers.'¹²³

Complaints from tourists about aircraft noise in the Grand Canyon dropped as flight free zones removed air tours from the areas most visited by tourists. Air tours stopped flying over the Bright Angel Trail, the most popular and well used trail beneath the rim, nearest to Grand Canyon Village. Flight curfews restricted noise to certain times of the day and minimum flight levels reduced the sonic impact of air tours on ground visitors.¹²⁴ However, noise from these aircraft continued to permeate the Canyon. Helicopters were both seen and heard by tourists out towards Hermit's Rest and other less visited areas of the park. In 2015 the FAA

¹²¹ Ibid, 3.1

¹²² Ibid, 3.3.

¹²³ Ibid, 3.1.

¹²⁴ USDA Forest Service and National Park Service, 'Grand Canyon Railway, Inc. Passenger Rail Service, Grand Canyon Airport to Maswick Transportation Area, Grand Canyon Village: Proposal/Final Environmental Impact Statement', November 1993, p. 46.
<<https://play.google.com/books/reader?id=W482AQAAMAAJ&printsec=frontcover&output=reader&hl=en&pg=GBS.PR1>> [accessed 20 February 2018]

reported that 119,897 air tour flights were conducted at the Grand Canyon.¹²⁵ The noise of commercial airliners and military aircraft remained part of the Canyon's sonic identity.¹²⁶ Automobiles, RV's, motorcycles, NPS maintenance vehicles and other mechanised machines endured and added to the Canyon's noise pollution issue. The Grand Canyon Railway, that ceased operations in 1968 but was reinstated in 1989, brought further noise to the park. The diesel whistle of the train at 1000 feet had a sonic impact of 80dBA and was heard at a great distance. This author clearly heard the train's whistle at Indian Gardens, some 4.8 miles by trail and 3,000 feet below the rim. A train arriving at the Grand Canyon depot, just a short walk from the El Tovar hotel and the South Rim, sounded its whistle nine times. With two trains running per day, train-operating sounds were heard for approximately 34 minutes.¹²⁷ The table listed below relates the sonic impact of various human-made noise sources in the park and their effect on particular areas. Aircraft were just one of many sources of noise that impacted the Grand Canyon's soundscape and replaced natural quiet with mechanical noise.

¹²⁵ National Park Service [online]. 'Grand Canyon Statistics' [cited 20 February 2018]. Available from: <<https://www.nps.gov/grca/learn/management/statistics.htm>>.

¹²⁶ The author saw and faintly heard a B2 jet flying over the Canyon at sunrise in May 2016.

¹²⁷ USDA Forest Service and National Park Service, 'Grand Canyon Railway, Inc. Passenger Rail Service, Grand Canyon Airport to Maswick Transportation Area, Grand Canyon Village: Proposal/Final Environmental Impact Statement', November 1993, p. 43.

<u>Location</u>	<u>Activity</u>	<u>Distance</u>	<u>Sound (dBA)</u>
Airport Parking Lot	Plane Warming Up	100'	58-60
	Plane Taxiing	100-1000'	60-68
	Plane Taking Off	1000'	75-82
	Plane Arriving	1000'	62
Tusayan	Helicopter Warming Up	200'	68-80
	Helicopter Warming Up,		
	Helicopter Landing	200'	80
	Helicopter Taking Off	200'	88
	Ambient Noise		64
Rain Tank (South End of Airport)	Ambient		50
	Plane Landing	500'	58
	Plane Taking Off	500'	82
Grand Canyon Village	Bus	10'	82-86
Maswik Lodge	Bus	50'	60-70
	Ambient Noise		50-58
Grand Canyon Village	Shuttle Bus Passing	20'	78
Train Depot	Bus Passing	20'	82
	Automobiles Passing	20'	65
Grand Canyon Village El Tovar Porch	Ambient		60
Grand Canyon Village El Tovar Lobby	Ambient		54
Grand Canyon Village Bright Angel Patio	People Talking		60
Grand Canyon Village South Rim	Ambient		50-52
Grand Canyon Village Loop Road Cutoff	Ambient		58-64

19. Noise measurements in Tusayan and Grand Canyon. 1993.¹²⁸

The effect of aircraft on park soundscapes, although the most prominent noise issue, was just one of the sonic consequences of nature tourism. The anthropophony, like the geophony and biophony, is comprised of a number of aural sources, all of which reduced tourists' opportunity to hear natural sounds undisturbed. The National Park Service's 1995 'Nature of Sound' report noted that the most prevalent aural disturbances across the park system came from road

¹²⁸ Ibid.

vehicles, aircraft, snowmobiles, watercraft and NPS maintenance equipment.¹²⁹

Managers of 91 parks were asked what noise issues other than aircraft occurred in their respective parks. They reported, in order of annoyance, that after aircraft, road traffic, power generators, audio equipment, domesticated animals and people communicating were the most problematic.¹³⁰

At Yosemite the NPS realised that their policies to allow greater tourist access across one hundred years had significantly urbanised the Valley's soundscape by the late-twentieth century. The 1978 Yosemite 'Draft General Management Plan' highlighted the noise issues that came with the park infrastructure. The report stated that while, 'we were busy building roads and parking areas to "open up" Yosemite Valley and make it accessible to the new generation of mobile Americans: today we look with irony on the acres of pavement, the traffic congestion, and the noise we have created.'¹³¹ Traffic congestion, arguably a problem ever since automobiles were first allowed access to the park, had by 1969 grown to such epic proportions that the Secretary of the Interior claimed 'the private automobile is impairing the quality of the park experience.'¹³² Traffic congestion, drag races and

¹²⁹ National Park Service, 'The Nature of Sound' 1995 <<http://npshistory.com/publications/sound/nature-of-sound/the-nature-of-sound.pdf>> [accessed 24 March 2016].

¹³⁰ National Park Service [online]. 'Report on Effects of Aircraft Overflights on the National Park System: Executive Summary Report to Congress' July 1995 [cited 14 January 2015]. Available from: <<https://babel.hathitrust.org/cgi/pt?id=umn.31951p00959601n;view=1up;seq=3;size=125>>.

¹³¹ National Park Service. Yosemite National Park, 'Draft General Management Plan: Visitor Use/Park Operations/Development' (Washington D.C.: U.S. Government Printing Office, 1978) p. 3.

¹³² George B. Hartzog Jr., 'Clearing the Road and the All-in Yosemite Valley', *National Parks & Conservation Magazine*, August 1972, p. 16. Quoted in Linda Greene, *Yosemite: The Park and its Resources*, p. 38.

the incessant and never-ending drone of motorhome generators appeared an inescapable part of Yosemite's soundscape.¹³³

The solitude that John Muir had written of was thus hard to locate in the Valley during the 1960s and 1970s as a party atmosphere emerged in the park. In the late 1960s, for example, park rangers listened to endless complaints from traditional park-users of counter-culture hippies playing ear-shattering music, barking dogs and loud drunken parties that spilt out into the once tranquil valley.¹³⁴ Tensions in the Valley had been rising throughout the summer months of 1970 as Park Rangers tried to keep the noise level down in the Valley's campgrounds. The *New York Times* reported how a 'young, long-haired camper kept the stereo tape deck in his car blaring Jefferson Airplane numbers at ear-splitting level hour after hour,' and that the 'blaring of rock music and the roaring of motorcycles shatter(ed) the night.'¹³⁵

The sounds of the period culminated in the infamous Stoneman Meadow Riots during July 1970, when the park resounded with the noise of social unrest. Park Rangers employed loudhailers to disperse the crowds that had overtaken the valley meadow and informed revellers that 'due to extreme litter and noise' they would be moved on.¹³⁶ In the ensuing battle sirens wailed as Park Rangers wielded

¹³³ Christopher E. Johnson, 'Getting There: Yosemite and the Politics of Transportation Planning in the National Parks', *The George Wright Forum* 29.3 (2012), 351-261 (p. 356).

¹³⁴ Michael Childers, 'The Stoneman Meadow Riots and Law Enforcement in Yosemite National Park', *Forest History Today*, (Spring 2017), 28-34 (p. 31).

¹³⁵ Ibid.

¹³⁶ Smithsonian Channel [online]. 'How Yosemite Became the Setting of a Chaotic 1970 Riot', August 2016 [cited 14 September 2016]. Available from: <https://www.youtube.com/watch?v=eb2DrV_vz9E>.

nightsticks, ropes and chemical Mace against over 400 'young people.'¹³⁷ In Yosemite Valley the sounds of nature were replaced with the noise of discord. With its close proximity to San Francisco, Yosemite called to hippies much as it had to John Muir. The park seemingly promised a path to freedom, but, by the time the hippies arrived, the overcrowded park had become a cacophony of noise that Muir would not have recognised, or appreciated.

Although Yosemite National Park covers over 1,100 square miles, the Valley, where the vast majority of visitors have been concentrated, is only about 7.5 miles long and 1 mile wide.¹³⁸ The concentration of tourists within this area exacerbated the noise problem. Camping grounds, hotels, NPS housing and maintenance operations, buses, and other human activities in Yosemite Valley altered the park's sonic identity. In a report published in 1999, focus groups that discussed noise issues in Yosemite noted tour buses, automobiles, RV generators, jet overflights, machinery, construction and radios as the principal sources of noise pollution.¹³⁹

Counter-culture hippies, with their loud music, bongo drums and never-ending parties were not the only group singled out as a source of Yosemite's sonic ruination. For environmentalists, snowmobilers were as reprehensible a group as the hippies. Rob Harrison of the Sierra Club spelled out the group's thoughts on

¹³⁷ Robert A. Jones, 'National Parks: A Report on the Range War at Generation Gap', *New York Times*, 25 July 1971 (p. 1).

¹³⁸ Analysis of overnight stays in the park gives an indication of where tourists stay. For example, in 2017 there were the following number of overnight stays – concessioner lodging: 826,725, tent campers: 456,476, RV campers: 293,844, backcountry campers: 167, 507. The first three groups would have been overwhelmingly Valley stays. Most day-visitors also stay in the Valley. See, National Park Service Visitor Use Statistics [online], 'Overnight Stays by Category and Year for Yosemite NP: 1979 to 2017' [cited 10 March 2018]. Available from: <[https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Overnight%20Stays%20\(1979%20-%20Last%20Calendar%20Year\)?Park=YOSE](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Overnight%20Stays%20(1979%20-%20Last%20Calendar%20Year)?Park=YOSE)>.

¹³⁹ James Gramann, 'The Effect of Mechanical Noise and Natural Sound on Visitor Experiences in Units of the National Park System', *Social Science Research Review*, 1.1 (Winter 1999), 1-16 (p. 7).

snowmobile use in wild areas to the EPA in 1971. Snowmobiles offered, Harrison claimed in ignorance of the air tours that plagued the Grand Canyon, 'the most serious noise hazard faced by wilderness areas throughout the United States.'¹⁴⁰ In part this was due to the great distance that noise from these machines could travel, especially during the muffled quiet of winter months. Skiers in the winter stillness of Yellowstone reported being able to hear snowmobiles at a distance of ten miles.¹⁴¹ The noise of snowmobiles in Yosemite led to confrontation with cross-country skiers. During 1973, one group of Yosemite snowmobilers returned to their vans only to find that that the windows had been smashed with ski poles. Additionally, there were reports of frustrated and annoyed skiers lying down in front of snowmobiles trying to block their path.¹⁴² Backcountry users were keen to make their disapproval known to the NPS. Yosemite Assistant Superintendent, John Good, wrote in 1975 that they had received many letters and other complaints about the noise of snowmobiles in the park.¹⁴³

Unlike scenic air tours that flew over the parks, which the NPS had virtually no control over, agency managers were able to determine the fate of Yosemite's snowmobiles under the provision of Executive Order 11644. This order required land management agencies to plan for off-road vehicle use based on the protection

¹⁴⁰ BL, UC, Berkeley, Bancroft: Sierra Club Records, MSS 71/103 Carton 146, Folder 3, Rob Harrison, 'Presentation at the EPA Hearing on Recreational Noise: Denver, Colorado, 1 October 1971.

¹⁴¹ Michael Yochim, *Yellowstone and the Snowmobile: Locking Horns Over National Park Use*, pp. 127-128. Yochim wrote that in the winter of 1999 between 60,000 and 80,000 snowmobiles entered the Yellowstone National Park. On President's Day and during Christmas holidays there were between 1,500 and 1,800 snowmobiles park-wide.

¹⁴² Earl Gustkey, 'Snowmobiles: Loved by Few, Hated by Many', *Los Angeles Times*, 19 January 1979, p. 54.

¹⁴³ 'Decision on use of Snowmobiles on Yosemite Road due in a Week', *Nevada Evening Gazette*, 26 November 1975, p. 13.

of resources.¹⁴⁴ Yosemite's administrators decided that the best plan to protect the park was to ban snowmobiles outright in the early 1970s. Park Superintendent Les Arnberger gave his reasoning behind the ban. He argued that ejecting snowmobiles helped 'preserve the park-like atmosphere of Yosemite's winter wilderness for the increasing number of winter visitors who come to enjoy the Park on its own terms.'¹⁴⁵ Natural quiet needed to be the park's sonic identity, and not the roar of snowmobiles.

The ruling set off a debate that followed similar themes as for both scenic air tours and motorised watercraft within the Grand Canyon. Snowmobilers were slated as enemies of the parks while environmentalists were labelled as purist elites who wanted to secure sole of these places for themselves. In a particularly vitriolic letter to Arnberger, Bud Weber of the Sierra Snowmobile Club claimed that as taxpayers, snowmobilers had every right to take their machines into Yosemite. Weber accused Arnberger of being a despot and wrote that he hoped the superintendent would be 'replaced very, very soon.'¹⁴⁶ Concerned park-users joined in the raucous debate and accused snowmobilers of being disrespectful to other visitors. Californian resident Nancy Knight wrote in a concerned letter to the *Fresno Bee* in 1981 that she thought the noise of snowmobiles was 'totally out of harmony with the healing silence of snow-covered mountains' and that a 'single snowmobiler {had} the capacity to ruin the recreation of those who seek the natural sounds and silences of

¹⁴⁴ 'The Wilderness Society, Achieving Compliance with the Executive Order "Minimization Criteria" for Off-Road Vehicle Use on Federal Public Lands" Background, Case Studies, and Recommendations' May 2016.

¹⁴⁵ BL, UC, Berkeley, Sierra Club Records, BANC MSS 71/103 Carton 55 Folder 15, National Park Service News, 'Press Release: Snowmobile Ban at Yosemite to Continue this Winter', 3 December 1974.

¹⁴⁶ BL, UC, Berkeley, Guide to the Sierra Club Records BANC MSS 71/103 Folder 15, Bud Weber to Superintendent Arnberger, 30 January 1975.

the mountains within a radius of many miles.¹⁴⁷ Knight labelled snowmobilers a selfish group who did not respect Yosemite and who ruined the park for everyone else.

Despite the ban, attempts were made during the Reagan administration to re-open up certain areas of Yosemite to snowmobilers. President Reagan's Interior Secretary, James Watt, a keen snowmobiler who was known to have barrelled around Yellowstone National Park, endorsed these efforts. Watt ordered Lassen Volcanic National Park, California, open to snowmobiles in 1981, and against strong opposition, Yosemite opened up some locations on a trial basis.¹⁴⁸ However, despite Watt's concerted efforts, snowmobiles were ultimately banned in Yosemite. The argument of freedom to explore the parks by aircraft, motorboat and snowmobile, which was opposed by those who thought they had freedom to experience nature free from these noise intrusions, echoed across the national park system.

In an effort to curb the expansion of traffic noise and congestion in Yosemite, Alfred Runte suggested in 1974 that the Yosemite Valley Railroad be reinstalled.¹⁴⁹ The railroad had been a popular method of transportation to the park, but the automobile and the scenic highway sounded its death knoll. Railroad operations were reduced after cars were permitted entry to the park in 1913, and finally came

¹⁴⁷ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 4 Subseries 3 Box 4 Folder 300, Nancy Wright, 'Snowmobile Noise', *Fresno Bee*, 10 April 1981, np.

¹⁴⁸ YNPA, El Portal, Yosemite National Park, YPCC Collection Series 8 Subseries 6 – Newspapers 1971-1982 Folder 1664, Paul Wilner, 'Watt's Snowmobile Dispute', *Herald Examiner*, 16 December 1981, n.p.

¹⁴⁹ The railroad never actually entered the park, as it had terminated at El Portal, not far from the park's boundaries.

to a close in 1945 when the track was ripped up for scrap.¹⁵⁰ Runte argued that mass transit was the 'obvious answer to keeping Yosemite open to large numbers of visitors without continuing to compromise its fragile beauty.'¹⁵¹

Despite Runte's argument, the railroad was never reinstalled. But the idea of mass transportation increasingly came to be considered as a remedy, or at least a step in the right direction, to reduce traffic congestion and noise in the park. The NPS began using shuttle buses in Yosemite during 1970 and closed the eastern third of the park to private automobiles to reduce air and noise pollution.¹⁵² Though shuttle buses were successful in reducing usage of privately owned automobiles, and their noise, the diesel buses used by the NPS were themselves inherently noisy. In 1987 Representative Tony Coelho remarked that, 'perched on the rim of the valley last summer, we could hear the shifting gears of tour busses and garbage trucks from four thousand feet below.'¹⁵³ The Park Service's year 2000 'Supplemental Environmental Impact Statement' for Yosemite measured the noise emitted from the diesel buses that were used in the park. At a distance of 100 feet, these buses that were continuously used to transport tourists around the park, averaged 64 dBA., equivalent to an alarm clock. Tourists were advised that if they went to Yosemite anticipating John Muir's 'place of rest' from the roar of the city, they were in for a rude awakening. 'Visit Yosemite at the height of summer,' *National Parks*

¹⁵⁰ Alfred Runte, 'Yosemite Valley Railroad: Highway of History, Pathway of Promise', *National Parks and Conservation Magazine*, 48.12 (December 1974) 4-10 (p. 7).

¹⁵¹ *Ibid.*, (p. 8).

¹⁵² Johnson, 'Getting There: Yosemite and the Politics of Transportation Planning in the National Parks', (p. 356).

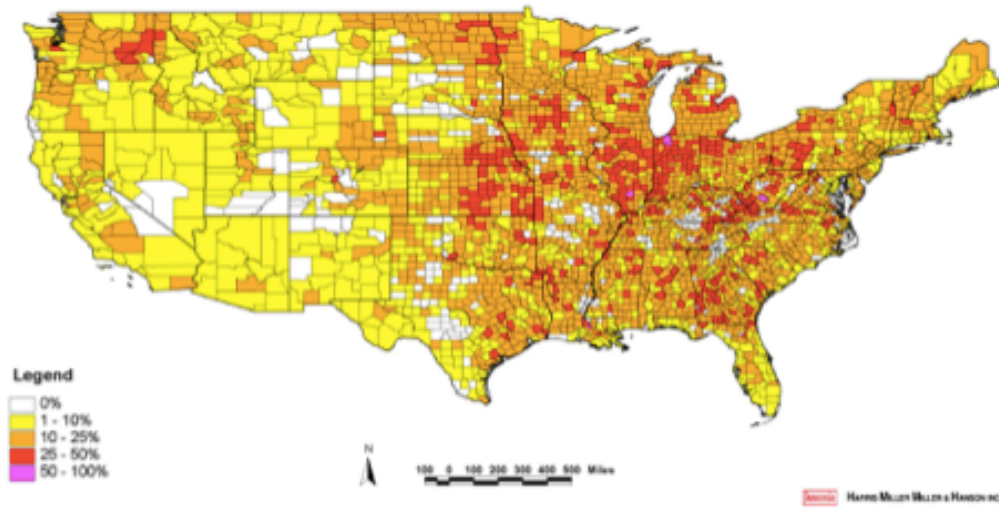
¹⁵³ BL, UC, Berkeley, Sierra Club Southwest Office Records, 1900-2000 BANC MSS 98/134c, Series 1, Carton 1, Folder 49, Hon. Tony Coelho, In the House of Representatives, 18 February 1987, *Congressional Record*.

Traveller informed its readers, 'and your senses can be assaulted by the crowds, the noise of delivery trucks, the buses, the occasional emergency sirens.'¹⁵⁴

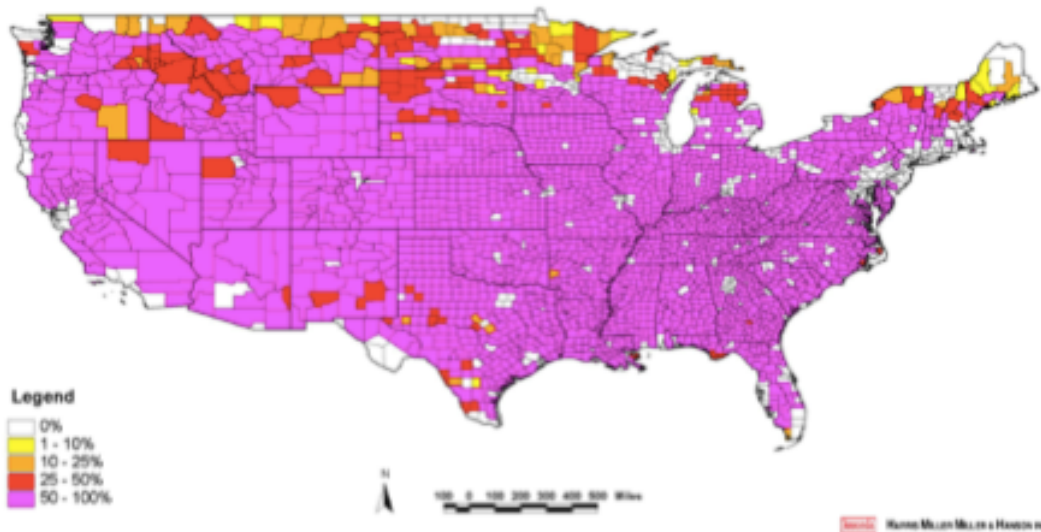
On a wider level, escaping mechanical and human-made noise in national parks became increasingly difficult. Noise maps produced by Harris, Miller, Miller, & Hanson Inc. in 2002 demonstrated how pervasive noise had become in the United States. In virtually no areas of the United States, including protected natural spaces, these maps demonstrated, was it possible to hear natural sounds undisturbed. Gordon Hempton published a book in 2009 about his search to find somewhere in the lower forty-eight where natural sounds could be heard undisturbed. Silence, Hempton wrote, 'has become an endangered species' and that 'even our most expansive and remote national parks are not free from human noise intrusions.'¹⁵⁵ In his quest Hempton found what he believed to be the least sonically disturbed place, a one square inch of natural quiet in the Hoh Rain Forest, part of Olympic National Park, Washington.

¹⁵⁴ National Parks Traveller [online]. 'Summering in Yosemite: The Logistics', online magazine, 2018, Visiting the Parks section. [cited 4 March 2018]. Available from: <<https://www.nationalparkstraveler.org/parks/yosemite-national-park/summering-yosemite-logistics>>.

¹⁵⁵ Hempton & Grossman, *One Square Inch of Silence*.



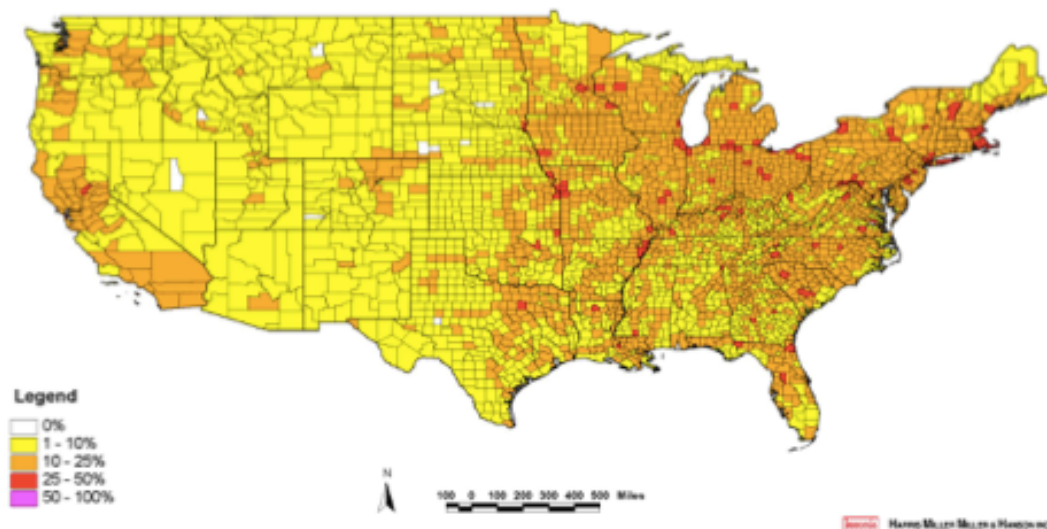
20. Percents of County Areas in which Rail Traffic Noise is Noticeable During the Day¹⁵⁶



21. Percents of County Areas in which Jet Traffic Noise is Noticeable During the Day¹⁵⁷

¹⁵⁶ Nicholas P. Miller 'Transport Noise and Recreational Noise', *inter-noise 2002*, August 19-21, 2002 (published paper) 2.3 Railways.

¹⁵⁷ *Ibid*, 2.4 Commercial Jet Routes.



22. Percents of County Areas in which Highway Traffic Noise is Noticeable During the Day¹⁵⁸

The National Park Service, environmentalists and concerned citizens tried to raise public awareness to the noise problem as it spoke to national parks. The campaign at the Grand Canyon to reduce aircraft noise proved only one of many. The ‘Friends for a Quiet! Glacier Coalition,’ led by local resident Mary T. McClelland, started a campaign in 2016 against the use of air tour helicopters at Glacier National Park, Montana. McClelland called on Sally Jewell, Secretary of the Interior during the Obama administration, to eliminate air tour noise from the park.¹⁵⁹ Currently, helicopter tours still operate at Glacier; silencing air tours once they have been established has been a difficult task, as noted at the Grand Canyon. However, the campaign to ban air tours at Rocky Mountain National Park in Colorado in the 1990s was successful. Led by the Estes Park League of Women Voters (EPLWV), with

¹⁵⁸ Ibid, 2.2 Highways.

¹⁵⁹ Mary T. McClelland, Friends for a Quiet! Glacier Coalition, to Sally Jewell, Secretary of the Interior, 27 April 2016. Received via email from Dick Hingson of the Sierra Club, 29 April 2016.

support from the Congressional delegation, air tour operators were banned from flying at the park in 1998. This campaign succeeded where others had failed as action was taken prior to air tours becoming established at the park. Effective local leadership, with their compelling 'Ban the Buzz' slogan that was emblazoned on t-shirts, galvanised support from local businesses and residents that was key to the campaign's victory. Randy Jones, Superintendent at Rocky Mountain National Park, recognised the EPLWV's work and awarded them park's Stewardship Trophy in 1997. He highlighted how the League had rapidly generated bi-partisan support from all local state government officials and members of Congress.

In line with the National Park Service's more ecological approach to park management, the agency proved active in both raising awareness to sonic issues and trying to reduce human-made noise in the parks. In the year 2000, the NPS inaugurated a new division within the agency, the 'Natural Sounds and Night Skies Division,' to address park noise levels and light pollution in national parks. Education was a key part of the division's role. The Park Service produced an episode of 'Yosemite Nature Notes' to educate tourists on the park's natural sounds. Park Ranger Karyn O'Hearn told viewers in the video how listening added a further dimension to the park experience and highlighted the reductive effect that human-noise had on park soundscapes.¹⁶⁰ The Yosemite National Park website featured a number of soundscape educational materials. These included an episode of 'Yosemite Voices,' a podcast interview with Kurt Frstrup, the senior acoustic specialist with the Natural Sounds Program, which took place in the park in 2008.

¹⁶⁰ National Park Service [online]. 'Soundscapes' *Yosemite Nature Notes*, Episode 29, 16 November 2016. [cited 14 March 2017]. Available from: <<https://www.youtube.com/watch?v=9X5JfGI0hr0>>.

Fristrup spoke of the ability to hear natural sounds in the park, and that ‘it’s so quiet that you really become conscious of the enormous space around you.’ He also noted the effect of human noise on the park experience; ‘the most beautiful scenes,’ Fristrup stated, ‘will lose their power and their sort of potency to evoke awe and wonder and contemplation if you imbed them in a noisy environment.’¹⁶¹ The Natural Sounds division tried to make tourists aware of how they could help to make the parks quieter, and that even ‘silencing a cell phone’ could improve park experiences.¹⁶² A more direct approach was taken in Muir Woods National Monument in California, where library style ‘quiet’ signs were erected.

While machines from the automobile to the helicopter were responsible for the degradation of park soundscapes, new technologies offered an opportunity for tourists to experience quieter parks. Under the ‘Quiet Parks Program,’ the Natural Sounds Division introduced practices that included the use of quieter motorised tools, solar power to replace diesel generators and less noisy park transportation.¹⁶³ In December 2017 Yosemite ordered two electric powered shuttle buses from the manufacturer Proterra, in order to reduce both noise and air pollution.¹⁶⁴ So-called ‘Quiet Aircraft Technology’ and the use of no tail rotor helicopters (NOTAR) reduced the noise from air tours. ‘Quiet Technology’ is a misleading term, though quieter than ordinary helicopters, these machines are still noisy. A prototype battery

¹⁶¹ National Park Service [online]. *Yosemite Voices 1: Soundscapes* 9 July 2008. [cited 14 March 2017]. Available from: <<https://www.nps.gov/yose/learn/photosmultimedia/yv1-soundscapes.htm>>.

¹⁶² National Park Service [online]. ‘Night Skies and Natural Sounds Division.’ [cited 14 March 2016]. Available from: <<https://www.nps.gov/orgs/1050/whatwedo.htm>>.

¹⁶³ National Park Service [online]. ‘Quiet Parks Program.’ [cited 14 August 2017], Available from: <https://www.nps.gov/subjects/sound/quietparksprogram.htm>.

¹⁶⁴ Proterra [online]. ‘Yosemite becomes First U.S. National Park to Purchase Zero-Emission Buses.’ [cited 4 March 2018]. Available from: <<https://www.proterra.com/press-release/yosemite-becomes-first-u-s-national-park-to-purchase-zero-emission-buses-from-proterra/>>.

operated aircraft developed by Aero Electric Aircraft Corporation offered the potential in the long-term to make reductions in the sonic impact of humans in nature. The Natural Sounds Division ran tests on the Sun Flyer and noted that the 'aircraft radiates roughly 1/1000th the noise of conventional aircraft.'¹⁶⁵

Although new technologies can reduce the sonic imprint of machines, with park visitation rising every year the challenge of restoring natural quiet is a daunting challenge. The opportunity to hear natural sounds undisturbed in the national park system remains scarce. Business and political interests remained a barrier to noise reduction, as jobs are a powerful consideration. The fact that the NPS do not have control of the skies above the parks has meant that they have been and continue to be at the mercy of the FAA – an agency that promotes air travel. Education, activism and raising awareness to the enjoyment of natural sounds has had an impact – park visitors need to be given a reason to get out of their cars, not take an air tour and take to the trails instead. The noise pollution issue in the national park system is a part of the age old problem that has always befallen the NPS – how to conserve and protect the parks for the benefit and enjoyment of the people while still allowing access. As all sounds contribute to a given soundscape, any noise that can be either removed or reduced has a positive effect. Efforts made by the Natural Sounds division, quieter technologies, and better personal conduct offer opportunities for a reduction in noise pollution, and the re-establishment of more natural soundscapes in the nation's national parks.

¹⁶⁵ Pia Bergqvist, 'National Park Service Gathered Sound Data from Sun Flyer', *Flying* 15, December 2015.

Conclusion

From Birdsong to Rotorslap

On 11 September 2001 backcountry hikers and river runners in the Grand Canyon noted a conspicuous absence, that absence was the incessant drone of aircraft. Following the terrorist attacks, the United States' airspace was closed and the Grand Canyon's backcountry once again echoed with the sounds of nature. The clamour of noise from air tours, military jets and commercial airliners had become such a common feature of the park that the *Grand Canyon News* reported how an 'eerie silence' had fallen over the Canyon.¹ Christa Stadler, who had been on a sixteen-day river trip at the time, recalled how tourists she had met on her expedition remarked on the lack of noise, such was the pervasiveness of aircraft noise at the park.² Similar stories emerged during the federal government shutdown during October 2013 when the park was closed to tourists. Naseem Rakha visited during the closure and reported finding empty parking lots, roads without the normal congestion and viewing points freed from the chatter of tourists and click of cameras. Rakha, like Stadler, was struck by the tranquillity of the normally noisy park - 'the wind is blowing', she wrote, 'it whips through trees, rattles leaves, blows

¹ Grand Canyon News [online]. 'Eerie Silence Enveloped GCNP Airport'. 19 September 2001. [cited 17 January 2018]. Available from: < <https://www.grandcanyonnews.com/news/2001/sep/19/eerie-silencebrenveloped-gcnp-airport/>>.

² Arizona Raft Adventures – Grand Canyon [online]. 'Grand Canyon River Stories – Christa Stadler'. [cited 17 January 2018]. Available at: < <https://azraft.com/grand-canyon-river-stories/>>.

grit across the paths. Empty paths. Empty silent paths, except for the moan of the wind and caw of an occasional raven. The chatter of a squirrel.³

These two events highlighted how noise in the Grand Canyon, along with other national parks had become so commonplace by the millennium that visitors were astounded by its absence. The terrorist attacks and government shutdown demonstrated to these visitors the ephemeral nature of noise. Nature's presence was heard in the 'silence', the wind and the call of birds that returned as the park's sonic identity. The visual intrusion of tourism was still visible through the Canyon's visitor centre, hotels and roads, but the noise made by humans was removed. Visitors who experienced the park during the terrorist attacks described that same sense of silence that had been expressed by tourists who stayed at the El Tovar in the early-1900s. Listening to nature has remained a constant sensory experience within the national park system since tourists first ventured into Yosemite and listened with pleasure to the Merced River, witnessing the call of a canyon wren and a myriad other natural voices. The national park experience was a celebration of the sounds of nature, not just of the visual wonders of these places. But human activity meant that the sound of birdsong was often obliterated by the noise of machines.

Visitors to American national parks considered nature's sonic events to be positive experiences. Yet, as this project has demonstrated, sensory encounters with wilderness were not always so romantic or appreciatory. The first Euro-American migrants who had listened to the North American soundscape during the colonial

³ Naseem Rakha – The Quiet [online]. 'In Grand Canyon National Park, Shutdown Day 9'. [cited 17 January 2018]. Available from: < <http://www.grandcanyonwriter.com/2013/10/inside-grand-canyon-national-park.html>>.

and early republic period did so with dread and foreboding. Sound, and on occasion a lack of discernible sonic indicators of place, played a significant role in how migrants cognised their adopted environments. The howl of wolves and calls of Native Americans generated for Euro-American migrants a sense of being in a threatening space where they felt vulnerable to the originators of these sounds. Natural sounds were often a negative sensory experience for these people. Primarily it was a lack of familiar cultural sounds that made migrants feel dislocated and defenceless – there was no reassuring ring of the church bell, tavern banter or the bustle of Main Street that reminded people of ‘home.’ Initially the sounds of human activity in natural areas were heard as a positive. For Euro-American migrants ‘silence’ was synonymous with a lack of progress, whereas the smote of the axe, the roar of hydraulic mining operations and of nails being driven into wooden boards, represented a nation on the move and the land being utilised to release its potential. As in urban areas, noise meant industrial production, jobs and dollars. Activities such as these made previously wild areas sound more reassuring to migrants, as sonic indicators of a more familiar civilisation came to be heard across the continent. The screech of sawmills overawed the murmur of streams – the noise of industry overarched and replaced the sounds of nature.

What these accounts demonstrated was the centrality of the aural sense when it came to how people understood their environment. Urban sounds were a constant reminder to Americans that they were in locations under the dominance and control of human forces. Human-made sound also defined spatiality. City dwellers awareness of the space in which they lived was guided as much through the aural sense as the visual. The screech of a train, the shouts from a sports field, the

rumble of vehicles along a road provided urbanites with sonic markers of space. City-noise led to feelings of being in an overcrowded space. Urban dwellers shut their doors to the sights of the city, but removing themselves from its aural influence proved a different and far more challenging proposition. In London during the 1850s Thomas Carlyle had a noise-proof attic room constructed to try to exclude the presence of the city from his mind. 'The world', Carlyle declared, 'which can do me no good, shall at least not torment me with its street and backyard noises.'⁴ Not all went to such extremes, or expense, but Carlyle provided an example of just how difficult it was to escape the noise of city life. Human-made sounds exerted control - an alarm clock, factory whistle and fire bell were all forms of sound that have told people to perform specific tasks and actions. In contrast, the natural soundscapes of the national parks offered Americans an escape from the controlling and crowded noise of urban life.

In national parks at the beginning of the 1900s, the presence of natural sounds and a near total absence of human-made sounds were heard enthusiastically as sonic indicators of places that were beyond human control and influence. Natural sounds were revised and thought of as positive, whereas human noise was categorised as a negative sensory experience. Americans were drawn to the parks not only due to the fine vistas that could be seen, but due to the sounds that they could listen to as well. As natural sounds became increasingly scarce in urban areas, the value of park soundscapes rose accordingly. Urban parks offered a vision of nature, but, set within the midst of bustling cities, the noise of human activity crept

⁴ John Picker, 'The Soundproof Study: Victorian Professionals, Work Space, and Urban Space', *Victorian Studies*, 42.3 (Spring 1999-Spring 2000) 427-453 (p. 428).

in as a stark reminder of their location. Tourists clearly conveyed their appreciation of natural sounds in the national parks during this period. 'Silence', 'hushed' and 'tranquil' were amongst the terms used to describe and delineate, Yosemite, the Grand Canyon and other parks from urban areas. These were expressions of place that highlighted a lack of human sonic intrusion, influence and control. National parks offered a different aural experience and were branded and sold as peaceful places where the sounds of nature filled the mind and the noise of humans were absent. Surrounded by an ocean of noise, parks offered, according to John Muir, the National Park Service and others, an escape from the cacophony and discord of modern living. They thought that nature sounded beautiful, a rich tapestry of sound.

Yet, the very same people who came to celebrate nature soon threatened the integrity of park soundscapes. The early 1900s was a period of aural transition in the parks as tourists embraced these areas as favoured vacation destinations. The National Park Service's most formidable challenge since its inception was to find the balance between conserving the parks and at the same time promoting access, as directed by the 1916 Organic Act. Though noise was ephemeral, it still altered how tourists thought of the parks. Accommodation and other tourist related facilities were established that increased the sonic imprint of humans. Entertainment also came to the parks. The sounds that emanated from Camp Curry in Yosemite, vaudeville, the band that played for skaters on the ice rink and movie presentations, were all aural representation of urban areas not the sounds of nature. It became increasingly difficult for park visitors to hear nature undisturbed by human activity.

The National Parks Service's focus on increasing visitation through expanding scenic highways, parking lots and roadside viewing spots degraded the natural soundscape. The agency embraced the automobile as an efficient platform to consume the park from as these places were increasingly managed and promoted as a visual experience. Mission 66, the post-World War II program to update park infrastructures, reinforced the belief that seeing the parks through a windshield was the favoured approach. This ushered in what Edward Abbey called industrial tourism and increased the decibel level in the parks.⁵ Automobiles, tour buses and motorcycles expanded noise beyond the immediate areas that surrounded zones dedicated to lodging and entertainment. These forms of transportation altered tourist perception through both overlaying park soundscapes with mechanised noise and cocooning people within vehicles that distanced them from the sounds of nature.

Park users who sought to escape the noisy crowds ventured into backcountry areas in their quest for solitude. However, by the late 1960s, noise could be heard in even the remotest areas. At the Grand Canyon, motorised watercraft noise split into the natural sounds that river runners heard on the Colorado River as the drone of two-stroke engines replaced the splash of oars. Motor-powered boats increased participation and soon traditional river runners were complaining of overcrowding that brought even more noise pollution. John Wesley Powell had written of his trip on the river in 1869 as a sonic event, his emotions were closely tied to the sound of the river. His mood reflected the sounds that he heard, a quietly running river made

⁵ Edward Abbey, *Desert Solitaire, A Season In the Wilderness* (New York: Ballantine Books, 1988), p. 59.

him feel secure while a roaring river filled him with trepidation over fearsome rapids. He sensed through the sounds that he heard that he was in a wild place. Motorised watercraft altered this perception; the river was essentially the same in terms of its physical characteristics, but it sounded different and this gave way to thoughts of being in a place surrounded by other humans, not wilderness.

Simultaneously as motorised watercraft brought noise to the river, increased aircraft activity altered the park experience for backcountry users. In both Yosemite and the Grand Canyon, as well as other parks, tourists' sense of place was affected by aircraft noise. Aircraft became the most prominent noise pollution issue in the national park system as these machines were not tied to existing park infrastructure and affected areas that had previously appeared immune to human-made noise. No particular attention had been paid to natural sounds as a core, and thus park managers underestimated the threat.

The response to aircraft noise highlighted the importance that tourists, environmental groups and the National Park Service had come to place on natural quiet. Tourists complained bitterly and passionately to Park Service officials over sonic intrusions that ruined their wilderness experience. Complaints highlighted specific grievances but had little impact against businesses that were supported by powerful politicians in the 1980s who thought more of the ballot box than of park resources. The battles that ensued to remove aircraft noise from national parks demonstrated that economic interests sometimes outweighed the protection of park resources. Environmental campaigns worked best when proactive rather than reactive. This was shown to be the case through the campaign led by the Estes Park

League of Women Voters who ran a successful movement in the 1990s to ban air tours at Rocky Mountain National Park prior to their establishment.

One of the issues that faced campaigners was the ephemeral quality of noise. Air tour operators argued that their method of park exploration left no permanent damage and no physical presence in the parks. But, aircraft did on occasion cause physical damage to the park, as the remains of accidents testify to. Air tours reduced the park experience to a single sense that offered little more than an IMAX vision of the parks – nature seen and consumed from afar. National parks were cast as a product to consume at speed, tourists were taken from hotels in buses and placed in aircraft that only provided a postcard impression rather than a fully immersive experience. At the same time air tours compromised mass enjoyment of the parks that led to arguments over personal freedoms – the freedom to explore by any means and the freedom to experience the parks free from intrusive noise. The debate over nature, sound, and recreation continues to this day with no end in sight.

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Glossary of Terms

Acoustic Ecology: 'the study of the effects of the acoustic environment soundscape on the physical response or behavioural characteristics of creatures living within it.'¹

Acoustic Space: 'the profile of a sound over the landscape. The acoustic space of any sound is that area over which it may be heard before it drops below the ambient sound level.'²

Anthropophony: 'human-produced sound.'³

Biophony: 'the voice of living things.'⁴

Geophony: 'the non-creature sounds of the earth.'⁵

Keynote Sound: sounds that are 'heard by a particular society continuously or frequently enough to form a background against which other sounds are perceived.'⁶

Natural Quiet: 'the absence of man-made sounds.'⁷

Natural Soundscape: a soundscape of the biophony and geophony but not the anthropophony

Soundmark: 'this term is derived from landmark to refer to a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community.'⁸

Soundscape: 'the sonic environment. Technically, any portion of the sonic environment regarded as a field of study. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an environment.'⁹

¹ Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, pp. 271-275

² Ibid.

³ Krause, *Wild Soundscapes: Discovering the Voice of the Natural World – A Book and CD Recording*, p. XI.

⁴ Ibid.

⁵ Ibid.

⁶ Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, pp. 271-275

⁷ Defined in the '1986 Environmental Assessment for Aircraft Management at Grand Canyon National Park.'

⁸ Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, pp. 271-275.

⁹ Ibid.