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# The American Southwest as Muse: Maggi Payne's Sonic Deserts

Sabine Feisst

*Deserts have long captivated the imagination of musicians. Ferde Grofé, Edgard Varèse, Olivier Messiaen, and Steve Reich among others created compositions reflecting desert landscapes. Most of them, however, have had little familiarity with these places. David Dunn, Richard Lerman, and Maggi Payne, on the other hand, have developed strong connections with deserts and portrayed them in numerous works, compelling examples of sensitive engagement with Southwestern landscapes. This paper centres on Payne, one of few women composers whose music often features deserts in California, Nevada, New Mexico, and Utah. Three works, *Airwaves (realities)*, *Deserts*, and *Apparent Horizon*, will be analysed and contextualised against the background of Payne's environmental philosophies.*

*Keywords: Ecomusicology; Deserts in Music; Maggi Payne; Acousmatic Music; Remote Surrogacy; Acoustic Ecology*

## Introduction

Thanks to their fierce nature, resistance to human habitation, and potential for metaphor, deserts have long fascinated writers, philosophers, and artists. Deserts have inspired many musicians including Ferde Grofé, Edgard Varèse, Olivier Messiaen, and Steve Reich to create noteworthy works. But most of these composers have had only tenuous connections with the arid and largely unpopulated places and they rarely visited this theme more than once. In contrast, such composers as David Dunn, Richard Lerman, and Maggi Payne have strongly identified with deserts, especially with those of the American Southwest. They have lived near these deserts, pondered their ecological fragility and paid tribute to them in many works. Their sonic deserts stand as sensitive engagements with these places and as compelling examples of gentle environmental activism. This essay focuses on Maggi Payne, one of few female composers whose music often features deserts and whose works vividly illuminate her relationship to places including Death Valley, Pyramid Lake, and Bryce Canyon. I will examine three of her works, *Airwaves (realities)*, *Deserts*, and

*Apparent Horizon*. I will show how these compositions relate to other musical pieces about deserts and explain how they reflect Payne's ecological concerns.

### Popular Views of Deserts

Distinguished by water scarcity, low precipitation, and high evaporation, deserts around the globe are growing and multiplying. Human population growth, deforestation, agricultural growth, and drought have propelled land degradation and desertification. Thus, it is no surprise that in the twentieth and twenty-first centuries deserts have become the subject of intense scientific and economic studies and have increasingly captured the artistic imagination. Perceptions of deserts vary widely. Rooted in the Latin word *desertum*, desert, means 'abandoned place' and denotes its relative resistance to human habitation and cultivation. Hence despite deserts' rich flora and fauna in hot and certain cold climates, they are often seen as wastelands, bleak and unattractive areas—'deep scars in the surface of the earth' (Knight, 2006, p. 126) and showing the bare 'bones of the planet' (Bancroft, 1994, n. pag.). Deserts' reputation as empty and flawed places has surely helped politicians and industrialists to justify them as sites for military technology and nuclear tests and toxic waste storage. According to historian Patricia Limerick, the American West

has a long history as the nation's dumping ground—either for troubling populations of Indians and Mormons or for radioactive and other poisonous substances. It was, for instance, surely no surprise to anyone when Western sites won the finalist's position for permanent national nuclear waste dump. (Limerick, 2000, p. 25)

Valerie Kuletz called it an example of nuclear colonialism (Kuletz, 1998, p. xiv).

Western artists have long dramatised the ways humans engage with these landscapes of extremes and death often building on the bible and hagiography where deserts appear as 'waste howling wilderness' (Deuteronomy 32:10) and hellish places infested with such 'wild beasts' as 'fiery serpents and scorpions' (Deuteronomy 8:15 and Mark 1:13) and swept by deadly winds, sand and dust clouds (Jeremiah 4:11). Tough humans or super humans, such as the Israelites (Exodus 16), Jesus (Matthew 4:1–11) and such saints as the Desert Mothers (*ammās*) and Desert Fathers (*abbas*) successfully endured these antagonistic environments.<sup>1</sup> Such impressions still mark the popular imagination. Since the nineteenth century, however, Western writers and artists have also increasingly reflected on the mysterious beauty of deserts and illuminated the different physical features of subtropical, cool coastal, cold winter and polar deserts, although they often exoticised these places due to little or no first-hand experience or limited understanding of these sites.

### Deserts in Music

In most Western classical music stereotypical desert portrayals, as outlined above, abound. The desert is a terrifying place in such sacred works as Carl Phillip

Emanuel Bach's oratorio *Die Israeliten in der Wüste* (1760) and in operas from Jean-Philippe Rameau's *Zaïs* (1748) to Jules Massenet's *Thaïs* (1894–1898) where humans usually conquer real or imagined arid landscapes.<sup>2</sup> On the other hand, Ralph Vaughan Williams's *Sinfonia Antartica* (1952), written for large orchestra and voices and based on his score for the film *Scott of the Antarctic* (1948, director: Charles Frend), is one of few works, which depicts humans losing their struggle against antagonistic nature.

Other composers romanticised the deserts' topographical otherness. With the 1844 choral work *Le Désert* and the 1880 tone poem *In the Steppes of Central Asia*, Félicien David and Alexander Borodin respectively portrayed Near Eastern and Central Asian deserts as beautiful, yet strange places and exoticised their nomadic inhabitants.<sup>3</sup>

Australian composer Peter Sculthorpe also made a few first-hand experiences of deserts in his homeland, but his most well-known works pointing to these landscapes, *Irkanda I–IV* (1955–1961) for solo violin and chamber ensembles and *Sun Music I–IV* (1965–1967) and *Kakadu* (1988) both for orchestra, suggest Australian outback landscapes as remote and empty places and as signifiers for human solitariness.<sup>4</sup> These works are largely marked by dissonant and static harmony, perfect fifths and fourths, and vibrant timbres. Curiously however, Sculthorpe wrote them before visiting deserts (Kakadu and Arnhem Land) and later admitted that the photographs of Australian deserts and other materials he used as sources of inspiration for these works conveyed a false sense of drama, intensity, and angularity often projected onto these places.<sup>5</sup>

### Deserts of the American Southwest in Music

Divided into four areas, Great Basin, Mojave, Sonoran, and Chihuahuan, and marked by hot temperatures, low rainfall, strong winds, red rock formations, sand, a plethora of drought-resistant plants and animals, deserts in the American Southwest have been contested lands. They have been inhabited by numerous Native American tribes, including the Apache, Hopi, Mohave, Navajo, Paiute, Seri, Shoshone, Tohono O'odham, and Ute peoples as well as Hispanic communities many of whom had (and still have) a deep understanding of the land and use water and other local resources sustainably. Their beliefs and land use practices, however, have often clashed with those of Euro-Americans who have increasingly populated Southwestern deserts and proceeded from extensive cattle ranching, logging, farming, cultivating nonnative plants, mining, and establishing military presence in the nineteenth century to developing aircraft, nuclear, retirement, tourism, and other industries in the twentieth and twenty-first centuries. Thanks to the availability of affordable air conditioning from the 1950s on, they have built such relentlessly sprawling urban centres as Las Vegas, Reno, Salt Lake City, Los Angeles, Phoenix, Tucson, Albuquerque, and El Paso—undeterred by the large human footprint on the delicate desert ecologies, the dramatic shrinking of groundwater tables, the emergence of dry rivers and air, water, soil, and noise pollution. The mean human footprint of the Sonoran and

Chihuahuan Deserts is one of the highest of the deserts around the globe (Ezcurra, 2006, p. 78). According to geographer Conrad Bahre, in recent times Western communities have ‘imported almost all that they need to live in the desert, including water’. He observed that most people in the American Southwest ‘do not live *with* the desert; they simply live *in* it’ (Bahre, 1998, p. 51).

Regardless of the population spikes, Southwestern deserts, especially in New Mexico and Nevada, have been framed by government officials as ‘empty’ and ‘lifeless’ landscapes to qualify them as ‘zones of sacrifice’, sites for extensive nuclear testing (White Sands, New Mexico and Nevada Nuclear Test Site) and nuclear waste storage (Yucca Mountain, Nevada), sites sacrificed for environmental contamination (Kuletz, 1998, p. 97f; 102ff and Lerner, 2010, pp. 267–295). This type of nuclearism has negatively affected the spirituality, health and economies of many desert dwellers, specifically indigenous people, as well as the desert flora and fauna. It may not be a coincidence either that the largest nuclear power plant in the USA, ‘Palo Verde’ (named after a tree common in the Southwest), is located in Tonopah, Arizona.

Deserts have often been imagined as borderless spaces, but the Sonoran and Chihuahuan deserts have very divisive borders and fences. Straddling the United States–Mexican border, these deserts have long been sites of political conflicts and show economic, cultural, and even vegetational contrasts. They are marked by extensive fencing along the 2000-mile line and ever increasing surveillance through US military and law enforcement. Due to illegal immigration, drug, weapon, and human trafficking as well as corruption and violence, between 2006 and 2010, the USA equipped this frequently crossed international border with 700 miles of high-security fences made of steel and concrete and complemented them with boots on the ground, canine help as well as ‘virtual’ fences: infrared cameras, sensors, radiation monitors and drones (Hodge, 2012, pp. 59–61; Vuilliamy, 2010, pp. 116–117).

Southwestern deserts have fuelled the imagination of many classical musicians, although the majority had only brief and mostly touristic encounters with these landscapes. In the first half of the twentieth century, numerous composers, especially those writing music for Western films, Jerome Moross, Max Steiner, Dimitri Tiomkin, and others, stereotyped Southwestern locales through the use of folk-like melodies, cowboy songs, modal or dissonant descending motifs (for Indians), horse rhythms, and static, open harmonies to suggest wide-open and barren landscapes with their ‘unruly’ inhabitants who might be conquered for ‘civilization’s sake’ (Pisani, 2005, pp. 292–329).<sup>6</sup> Composers for the concert stage advanced such musical tropes as well. Ferde Grofé’s popular *Grand Canyon Suite* (1931) and Aaron Copland’s ballets *Billy the Kid* (1938) and *Rodeo* (1942) are good examples.<sup>7</sup>

Modernist musicians including Edgard Varèse and Steve Reich were also drawn to these desertscapes which they experienced first hand.<sup>8</sup> In 1936 and 1937, Varèse went to Santa Fe for spiritual and creative stimulation and produced a major desert-inspired composition. Initially envisioned as an audio-visual work, *Déserts* (1950–1954) for chamber ensemble and three electronic interpolations on tape pays tribute to Varèse’s two sojourns and also reflects his long interest in global and extraterrestrial

deserts. *Déserts* is a short atonal work distinguished by highly differentiated timbres, nuanced textures, and dynamics, and by spatial qualities and effects of sound that may evoke the deserts' expanses, stillness and intense colours, and temperatures (Von Glahn, 2006, p. 300). Varèse's *Déserts* also points beyond physical places, connoting solitude and detachment and 'the remote inner space of the mind no telescope can reach, a world of mystery and essential loneliness' (Mattis, 1992, p. 192f). Thirty years later, Reich visited Southwestern deserts, specifically the Mojave, when he resided in Northern California and went on to write *The Desert Music* (1984). Like Varèse's *Déserts*, this large-scale work for chorus and orchestra in five movements has manifold meanings. Based on texts from William Carlos Williams's 1954 anthology *The Desert Music and Other Poems*, Reich's composition is emotionally charged, but not descriptive, harking back to earlier works in its use of pulsing chords and complex counterpoint. Reich said that while working on *The Desert Music*, Sinai and the Jews' exodus from Egypt were on his mind just as much as the dark history of White Sands and Alamogordo in New Mexico, places known for early atomic weapon development and testing. He suggested that such a misuse of these sites could generate true wastelands and destroy the planet (Reich, 2002, p. 128).

In the 1950s and early 1960s, however, many artists devoted to popular music, blues, gospel, jazz, rock, and country did not share such a critical view. During that period musicians touring Las Vegas, such as Count Basie, Dean Martin, and Frank Sinatra, provided carefree soundtracks for the mushroom clouds sprouting from aboveground atomic explosions in the Nevada Proving Grounds of the Nevada desert that could be seen by 'atomic cocktail' sipping tourists at bars and restaurants in downtown Las Vegas, then nicknamed 'Atomic City USA' (Roman, 2012, pp. 191–197). Numerous songwriters created lighthearted songs that naïvely referenced the dangerous experiments. One may listen, for instance, to Linda Hayes and the Red Callender Sextette's 1953 'Atomic Baby', Johnny Latorre's 1954 'Atomic Bounce', or to Fay Simmons's 1954 'You Hit me Baby like an Atomic Bomb'.<sup>9</sup> Count Basie's 1958 album *Atomic Swing* underscores this trend as well.

Two distinguished twentieth-century French composers, Olivier Messiaen and Luc Ferrari, also had brief encounters with the American Southwest and left memorable works about its landscapes. Messiaen's large-scale orchestral work *Des Canyon aux Étoiles* (1970–1974), written on the occasion of the United States Bicentennial, celebrates the beauty of Bryce Canyon and Zion National Parks as well as Cedar Breaks National Monument in Utah, sites that he visited with his wife in 1973. The work references desert landscapes such as calls from indigenous birds and harmonically evokes the colours of Bryce Canyon's red-orange rock formations. But Messiaen is not consistent, including songs from birds native to Hawaii, China and India in the mix. Furthermore *Des Canyon* is just as much a religious work whose strong theological connotations underscore Messiaen's Catholic faith. Ferrari's *Far West News* (1998–1999), on the other hand, is a large-scale musique concrète trilogy with field recordings Ferrari made when in 1998 he and his wife Brunhild Meyer travelled from Santa Fe to Monument Valley (Episode 1), from Page to Grand Canyon (Episode 2) and from

Prescott to Los Angeles (Episode 3). Ferrari weaves together sounds of birds and crickets, his chats with strangers, conversations of desert dwellers, the sonic environments of cafés and whooshing and rumbling cars. Ferrari punctuates his aural travelogue with funky and sometimes clamorous processed environmental and electronic sounds, thus lending it a surreal and humorous touch. Like most works discussed above, to a certain degree *Far West News* reflects what sociologist John Urry called the ‘tourist gaze’ (Urry & Larson, 2012). Composers for Western films, Grofé, Copland, Varèse, Messiaen, and Ferrari had a set of stereotypical expectations that they, like many other tourists, projected onto these landscapes they visited and musically evoked.

In contrast, musicians who have lived in the American Southwest for extended periods, David Dunn, Richard Lerman, Garth Payne, and Glenn Weyant, have offered different approaches. Dunn grew up in the American Southwest and has critically engaged with his desert surroundings in numerous works. His site-specific *Nexus I* (1973) and *Sky Drift* (1978) ask musicians to perform in the Grand Canyon and California’s Anza-Borrego desert respectively and respond to these sites’ acoustics. His tape piece *The Sound of Light in Trees* (2005) exposes the ramifications of climate change in New Mexico through a mediation of the internal sounds of Pinyon pines infested by parasitical bark beetles. Lerman and Weyant, both Arizona residents, have created a series of works and performances that draw attention to the USA–Mexican border and its fences, the inanimate witnesses of many tragic events. Lerman has amplified and recorded border fences, capturing the sound of wind, vegetation, vehicles, and rattling debris via piezo disks and written pieces for amplified objects, border fence recordings and electronic processing, *Border Fences 1, 2 and 3* (1998–2002), *A Short History of Crossing Borders* (2010), and *Border Soundings* (2012). Besides a number of other compositions that critically address his desert environments, he has also created several sound installations titled *Fences/Borders* (2000–) featuring field recordings made along the USA–Mexican border. Based in Tucson since 1995, Weyant, a self-identified ‘border deconstructionist’, regularly performs on border fences, treating them as musical instruments (Carcamo, 2014). Equipped with violin and cello bows, drumsticks, or objects he picks up in the desert he creates sounds from barbed wire, helicopter landing pads, or steel rods in the Sonoran Desert. Weyant also uses low-tech microphones and amplifiers to capture the sounds of border walls and documents through sound how the border is changing. Paine, an Australian composer, who moved to Arizona in 2010 has created a multifaceted acoustic ecology project entitled *Listen<sup>n</sup>* (2013–) which explores manifold listening techniques and collects large numbers of artist- and crowd-sourced field recordings in national parks of Arizona, California, and New Mexico for use in acousmatic compositions, virtual reality experiences, community art, storytelling, and long-term monitoring with the goal of advancing greater consciousness of the deserts’ delicate sonic ecologies.

These and other desert dwelling musicians have been deeply immersed in these environments and have come to appreciate their fullness and their rich flora, fauna, and cultures. They have astutely listened to the deserts’ wide-ranging sounds and

offered manifold creative and critical responses to these places. Maggi Payne has to be included in this group of artists.

### **Maggi Payne**

Born in 1945, Payne was raised near Amarillo on the High Plains of Texas and through the back window of her parents' house she could see the expanses of the desert: 'with only pastures and Route 66.'<sup>10</sup> Since childhood, she has loved vast deserts and their severe weather: 'tremendous thunderstorms, hail... the intensely high winds (blowing and gusting so hard that they could almost topple me) and the amazing whistles and rattles they caused' (Dewey-Hagborg, 2011, n. pag.). However, she has been under no illusion that because the lands were frequently downwind of the far away nuclear experiments they were probably compromised by radioactive fallout. She took trips to Palo Duro Canyon in Texas (a place that visual artist Georgia O'Keeffe painted repeatedly and memorably) and camped alone in the desert to absorb 'the landscape on the large scale and minute details on the small scale' (Payne, 1991, n. pag.). She now lives near San Francisco and teaches at Mills College, co-directs the Mills College Center for Contemporary Music, works as a recording engineer and actively participates in the San Francisco Tape Music Collective. When Payne settled there in 1970, she was pleased to 'find the desert still so close at hand' (Payne, 1991, n. pag.).

Payne has made her mark in the new music scene as a composer of electroacoustic music, flutist, video artist, and recording engineer. She became fascinated with music technology at age 10 when she began to experiment with a Webcor reel-to-reel tape recorder she got from her father. As a student at the University of Illinois, she composed her first electronic works on a Moog synthesizer in the early 1970s. Later at Mills College she immersed herself in the study of electronic music and recording media. She also began to build her own synthesizers. Payne now focuses on acousmatic music, using sounds from urban and natural environments, whose frequency, timbre, duration and dynamics she modifies electronically often beyond recognition.<sup>11</sup> Payne said that her works are eminently sound driven and explained how she chooses sounds as follows:

For a sound to be of particular interest to me, I must be able to sense a potential within it that I feel I can later develop through various processes. If a sound is inherently abstract (unknowable) I'll sometimes leave it as is, already a mystery. At other times I'll process a sound beyond recognition, although I still feel a connection to its physicality and hope other listeners will also feel a certain connection. Occasionally I'll let the sound source clearly be known. My approach varies from piece to piece and within pieces. (Dewey-Hagborg, 2011, n. pag.)

Denis Smalley, a composer and writer specializing in acousmatic music theory, called the type of sound processing concerned with modifications of a sound's original identity, 'gestural surrogacy' (Smalley, 1997, p. 112) and identified gradated surrogacy

levels. In acousmatic music, ‘first-order surrogacy’ refers to recognizable sounds that are, for instance, obtained by gestural play with specific identifiable materials such as wood or glass or a bird call. Third-order surrogacy denotes electroacoustic sounds where ‘a gesture is inferred or imagined’ and ‘remote surrogacy’ describes sounds where ‘source and sound become unknown and unknowable as any human action behind the sound disappears’ (Smalley, 1997, p. 112). In her sound processing approach, Payne often moves organically through various surrogacy levels and lets sounds ‘evolve, as if crystals grow in real time under a microscope’ (Dewey-Hagborg, 2011, n. pag.). She layers and spatialises the processed sounds via multi-tracking and multi-channel diffusion in playback to create gradually changing and richly textured music.

She frequently complements her music with a visual dimension, using live dancers or images on film, slides, and later, exclusively video. She uses shots of natural and built environments as well as abstract images and also explores photo- and video-micrography, images taken through a microscopic lens. Visually she draws inspiration from such painters and filmmakers as Salvador Dalí, Georgia O’Keeffe and Stan Brakhage, all of whom paid tribute to deserts in their art. In her audio-visual works, Payne either ‘auralizes’ video or lets sound ‘drive visuals for their sense of space’ (Dewey-Hagborg, 2011, n. pag.).

For Payne music, visuals, and nature are inseparable. Many of her works suggest nature through titles, sound gestures, textures, and content. Payne is especially drawn to fierce natural phenomena such as polar and subtropical winds and thunderstorms. The deserts of the American Southwest have been among her most important source of creative inspiration. Good examples from her catalog are *Scirocco* (1983), *Solar Wind* (1983), *Airwaves (realities)* (1987), *Desertscapes* (1991), *Apparent Horizon* (1996), *Distant Thunder* (2003), *Santa Fe* (2006), and *STATIC* (2013), the latter six pay homage to Death Valley, Kelso Dunes, Devil’s Playground in the Mojave Desert and Mono Lake (California), Pyramid Lake (Nevada), and Bryce Canyon and Canyonlands (Utah) and the foothills of the Sangre de Cristo mountain range (New Mexico).

A passionate desert dweller to this day, Payne said ‘a sense of vastness as well as the drama of the desert permeates most of my works.’<sup>12</sup> She observed that in these landscapes ‘every sound becomes enormously magnified: the slightest rustle of a sage bush or the sound of a fly becomes monumental when in a state of heightened awareness.’<sup>13</sup> The stillness of the land reminds her of ‘how precious every miniscule sound can be’ (Dewey-Hagborg, 2011, n. pag.). In her desert-inspired compositions, Payne uses traditional forces such as flute and voice, field recordings and electronic sounds. Some of her works draw on field recordings she made in the desert. *STATITC*, a four-channel immersive environment, is one of them and it features sferics or radio signals which Payne captured with a Very Low Frequency (VLF) receiver. More often she transforms field recordings of everyday urban sounds into nature-like sounds to ‘conjure a sense of “space” or “place”’ (Dewey-Hagborg, 2011, n. pag.). Such is the case in her fixed media piece *Distant Thunder* where she processes the sound of boiling water, a

resonant floor furnace, and unrolling adhesive tapes in ways to convey the waxing and waning roars of desert thunderstorms.

Payne's strong attraction to American deserts is unusual, and, with the exception of Hildegard Westerkamp, Priscilla McClean, Ros Bandt, and Leah Barclay who have created one or sometimes several desert pieces, relatively few women composers have paid tribute to these landscapes.<sup>14</sup> Feminist scholar Vera Norwood noted that women were long placed in 'cultivated nature—in civilized gardens' while men were closely associated with a 'hostile natural environment' which tends to 'feed the achievement-oriented male psyche, enabling men to return to civilization and improve on their culture' (Norwood, 1996, pp. 232–234). This might explain to a certain degree why most desert-inspired compositions stem from male composers. Payne stands out for her steadfast output of musical tributes to Southwestern deserts over the course of the last three decades. Three of these works will now be examined.

#### *Airwaves (realities) (1987)*

Born of her fondness of deserts and admiration for desert dwellers who live in isolation, *Airwaves*, a 10-minute audio-visual work, is among Payne's earliest pieces dedicated to landscapes in the American Southwest. Although not apparent from the work's title, it references the Great Basin's valleys in Nevada. In the winter of 1986, Payne visited the area on a field trip in order to collect sounds and sights for this piece. She travelled along US Route 50, one of her favourite roads which in that year was dubbed the 'Loneliest Road in America,' due to the relative absence of civilization and very little car traffic.<sup>15</sup> Rush hour outside of Fallon meant the passing of one car every 15 minutes. Starting in California's Bay Area, Payne went through Reno, Sparks, Fallon, and Sand Mountain (a singing sand dune) with a stop at Pyramid Lake and back to California via Nevada City to Coyote Point, south of San Francisco International Airport.<sup>16</sup> She said:

The vastness, beauty and silence, power of the thunderstorms and weather in general, and most of all—the silence pulled me there. The silence was so overwhelming that I was forced to consider my own insignificance in the face of the desert night's sky, so vibrant with stars that it felt as if I could reach up in the velvet night's sky and touch one.<sup>17</sup>

This area, however, has also been home to the US Navy's Naval Air Station and the US Air Force's General Surveillance Radar Station (both at Fallon), uranium mines and waste disposal sites. Indeed, the discovery of dead horses near uranium mine tailings and roaring bulldozers at dumpsites left Payne disenchanted. She created *Airwaves* amidst massive protests against nuclear weapons testing in Nevada deserts led by the Nevada Desert Experience, a group of environmentalist Christians.

*Airwaves* explores the concepts of 'airwaves' and 'reality'. Payne who at the time worked for a major commercial radio station in San Francisco used airwaves, that is AM and FM radiobroadcasts of songs, advertisements, and narration, as a major

sound source for the piece. She was aware that ironically such airwaves could be heard in far away deserts at night on 'standard radios due to the raising of the Heaviside layer'.<sup>18</sup> She filtered out all but a 'very narrow band of frequencies of interest from each of the broadcast sources she selected'.<sup>19</sup> Aiming for remote surrogacy, she then combined them into complex frequency composites for upload on her 16-track Stephens recorder to create an extensive library of sounds all mixed to stereo. Next she interwove swelling and receding waves suggesting the winds she experienced in the desert and sounds evoking crickets and jet planes. She also used relatively unprocessed sounds of a car's interior, car traffic and the flyover of two airplanes in California. *Airwaves* suggests many different kinds of reality. The heavily edited radio broadcasts Payne used in her piece represent one reality (or rather 'unreality').<sup>20</sup> The sounds whose origin she completely obscured and the minimally processed field recordings suggest further realities.

The tripartite piece, the eighth work in her catalogue that uses moving images, juxtaposes different realities in its sonic and visual components. The first part contrasts video of the vast Nevada desert expanses and relatively car free US Route 50 near Sand Mountain with the sounds of cars passing at ever increasing speed and density on Interstate 5 in California. The middle section with visuals of windy Pyramid Lake at dawn is accompanied by sounds of 'unreal' crickets and wind obtained from recycled radio broadcasts, 'unrealities'.<sup>21</sup> The dramatic final section presents video of four single descending planes, shot at Coyote Point, south of San Francisco International Airport, the first flyover is unprocessed, followed by increasingly more processed shots of planes whose flyovers become shorter and shorter. It is supplemented by sounds of two planes proceeding from a high-pitched frequency composite in many expanding layers to include more and more low frequencies with which the piece concludes. The final part suggests how fast we move from one reality to another.

The first part in a trilogy of audio-visual works, *Airwaves* is a critical portrayal of the Nevada desert. Payne uses heterogeneous sonic and visual elements to address the different and conflicting realities of people in the Southwest: the reality of slow paced and self-sufficient desert dwellers such as the Paiute and Shoshone peoples who are deeply connected with the Great Basin's pristine landscapes; the reality of fast paced and noisy passers through in cars and planes drowning out subtle desert sounds; the utilitarian reality of those who see deserts as appropriate places for uranium mining, military activity, nuclear weapons testing, and the storage of nuclear and other hazardous industrial waste; the reality of desert inhabitants who grapple with the ramifications of working in hazardous mines out of financial necessity; and Payne's own realities. The sounds of *Airwaves'* opening section eerily anticipate that the reality of America's lonely US Route 50 would become another one. The 1986 label has attracted many curious tourists and the 'Loneliest Road in America' has grown busier and noisier. Payne demonstrates how contested Nevada's desert valleys are and *Airwaves* compellingly speaks to the complex problems underlying these locales.

*Desertscapes (1991)*

*Desertscapes* is another striking work that conveys Payne's fascination with desert landscapes in the American Southwest. Each of its four short movements evokes a different site: Pyramid Lake (Nevada), Death Valley (Eastern California), Bryce Canyon (Utah), and Devil's Playground (California) all of which Payne has visited many times for they are among her most favourite places. Payne scored *Desertscapes* for two spatially separated unaccompanied female choirs. She deemed the choice of female voices appropriate, explaining that it was as if Sirens, the female creatures in Greek mythology attracting sailors to dangerous maritime territories, lured her 'back to these desert haunts' (Payne, 1991, n. pag.). She wrote the lyrics for the work herself: short, descriptive texts celebrating the land, water, and weather of each place. For the settings she used minimalistic techniques to capture the austere attraction of the locales: a limited amount of pitches and narrow tonal framework enriched by dissonances, repetitive melodic and rhythmic patterns, and transparent and spatialised textures to surround the listeners as if in a vast desert.

The first movement evokes Pyramid Lake. Located northeast of Reno, Nevada and surrounded by mysterious tufa-shaped rock formations, this large desert lake is 15 miles long, 11 miles wide, and 350 feet deep, the habitat of the endangered Cui-ui fish and Lahontan Cutthroat trout and nearly 250 bird species.<sup>22</sup> It is on the reservation of the Paiute people who mostly live on fishing, tourism, and livestock farming. The lake's ecosystem, however, was long compromised by 13 tons of rockets and ammunition which the US Navy had submerged in the water between the Second World War and 2005. Payne drew on an experience she made at the lake on a cold and windy winter morning, watching how at sunrise 'tendrils of mist rose off the surface of the lake' and turned the surrounding tufas into 'soft white structures' (Payne, 1991). This movement opens with long wordless unison sounds alternating between a middle G and A. Payne textually and musically captures her experience through the lines 'the flat vastness of the land broken only by these rising tendrils of mist reaching upward' and a broadening of the voices' melodic scope, gradually filling one and a half octaves with manifold rising figures. She creates further excitement through ever more animated rhythms, proceeding from whole notes to eighth notes and through growing complexity in the overall eight-part texture marked by polyphonic interlocking rhythmic and melodic patterns (mm. 43–55).

The following movement features Death Valley, America's driest place and one of the hottest on earth, which nonetheless has a diverse flora and fauna and is home to the Timbisha tribe. Payne draws attention to the 'mirages across the burning desert floor' and the 'poisonous, yellow-green trickle of Salt Creek' which ends at Badwater Basin, the lowest elevation in the USA, in static and sustained sounds (Payne, 1991). Dense clusters and words and melodic lines splitting across the two choirs suggest the stream's slow meandering.

The third movement is dedicated to Bryce Canyon, the site of the world's largest aggregate of hoodoos, orange-coloured rock pillars, and home to both Paiute

Indians and Mormons. A group of amphitheaters rather than a canyon, this spectacular expanse, has not been immune to air, noise, and light pollution due heavy tourism and its nearby industrial and urban centres. Payne emphasises Bryce Canyon's unique geological features during wintertime when tourism is down and the orange sandstone 'minarets' have white stripes (Payne, 1991). Within a diatonic framework, sustained drones in the second sopranos and altos provide an atmospheric background for the delicate vibrato-less melodic phrases in the first sopranos and altos that rise like 'delicate immense figures to the surface' (Payne, 1991).

The last movement, 'Devil's Playground,' titled after the relatively little travelled sandy area in the Mojave Desert, is the most intense and rhythmically animated of the whole work. It depicts how on a blistering hot and windy day Payne hiked in the soft Aeolian sand to the top of Kelso Dunes, 600 feet above Devil's Playground's desert floor (Payne, 1991). In this movement, the outer voices explore high and low tessituras against an incessant polyrhythmic drone in the middle voices. The piece concludes on a powerful wide-spaced quintal chord whose highest note, also the highest pitch of the whole work, is a high A. Informed by Payne's experience in using spatialised electronic sounds (travelling across multiple speakers), *Desertscapes* features spatialization through sounds moving back and forth between two spatially separated choirs in all four movements to highlight the vastness and spaciousness of the chosen desert sites.

Like *Airwaves (realities)*, *Desertscapes* reveals Payne's deep engagement with four Southwest desert locales. It draws attention to their geographical diversity, delicate details, such as geological features, light, darkness, smell, and the feel of wind and sand, as well as to the sites' frailty, which might be overlooked by tourists who tend to pass quickly through these areas or by people who solely prize these places' industrial and commercial potential. *Desertscapes* challenges the misconception of deserts as empty places and wastelands. Although this work is stylistically conventional and does not reflect on these deserts' environmental problems (smog, acid rain, ozone smog, noise, and light pollution), it is far from being a mere musical picture postcard that seeks to offer listeners comfort and gratification through stereotyping and exoticization of place.

### *Apparent Horizon*

Five years later, Payne completed *Apparent Horizon*, which follows *Airwaves* and *Liquid Metal* (1994) as the third piece of her first audio-visual trilogy. The work's title underscores the Southwest deserts' distant skylines that separate the earth's surface from the sky. The term is also used in the fields of differential geometry and general relativity (in connection with such other concepts as 'event horizon', 'absolute horizon', and 'black holes') where it denotes a surface at which light rays radiating outward, move inward. Such apparent horizons are subject to change. *Horizon* pays homage to such sites as Mono Lake in California, a saline soda lake well known for its brine shrimp, Canyonlands with its numerous canyons, mesas and buttes, Bryce Canyon and Kelso Dunes.

*Horizon* also evokes connections between deserts on earth and in outer space. Indeed, due to their relative resistance to human habitation, outer space and celestial bodies have often been likened to terrestrial deserts and for that reason deserts on earth, some of them in the American Southwest, have been used as testing grounds for space exploration. NASA, for instance, has conducted a variety of experiments for Moon and Mars missions in the Mojave Desert. Deserts have also served for storage of meteors and space debris (Ezcurra, 2006, n. pag.).

For *Horizon* Payne gathered sound and video footage on and off location for more than six years. The primary sonic sources for *Horizon* are NASA sounds from Space Shuttle and Apollo transmissions, satellite transmissions, and shortwave radio broadcasts, including continuous human chatter, static sounds, Morse code signals and sounds of astronauts working in space. As in the case of *Airwaves*, Payne used Tom Erbe's Soundhack program to achieve remote surrogacy by completely transforming the sonic identity of the borrowed human and machine-generated sounds, especially unintelligible human chatter, static and other distorted signals. She used 'heavy equalization, convolving, extreme sample rate conversions and time compression/expansion' to obtain 'sounds somewhat reminiscent of nature's sounds in the landscapes to which they are attached': sounds of wind, rain, insects, birds, and other animals. She wanted to 'convey an aural impression of the sensations [she] experienced while in these earthbound landscapes' (Payne, 2013). She also created unearthly sonorities to suggest the strangeness of landscapes where humans seem out of place and to evoke the feelings astronauts may have had when looking at the Earth from space.

*Horizon* is a 12-minute work in one movement with slowly evolving and changing sounds, combinations of human-generated and virtual sounds of nature reminiscent of water, wind, and crickets. The work opens quietly with low breathy wind and high quivering hollow sounds as well as a middle register sonority from which a distorted voice of the WWV shortwave broadcasts informing listeners of the Coordinated Universal Time gradually emerges and fades (at 1'15").<sup>23</sup> Thereafter sounds evoking roaring and wheezing wind, otherworldly voices, buzzing insects, and airplanes fade in and out. These sounds form layers and undergo timbral and registral modifications in a slowly changing texture. The gradual development of sound and its slow movement through space conveys Payne's experience of being in the desert.<sup>24</sup> In the middle (4'15"–5'30"), a distinct interplay of Morse code signals transformed into cricket chirps crystallises. The fourth part features sounds suggesting strong winds, rainstorm, and thunder (6'15"–7'00"). The space chatter reemerges, but now punctuated by static crackles, buzzing 'insects,' and high wind-like sounds (8'30"–10'00"). The piece ends by mirroring the hollow sounds and unintelligible speech of the opening.

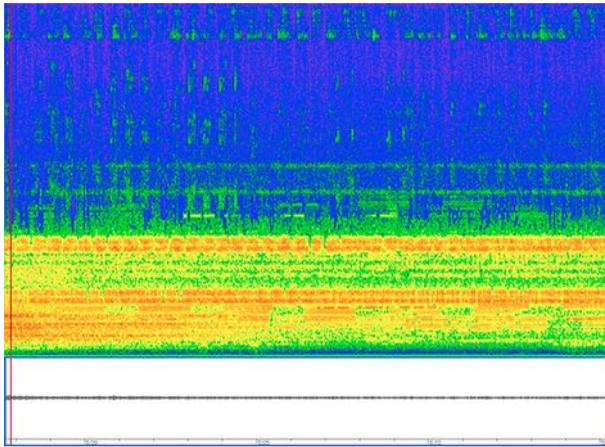
'Think[ing] of electroacoustic music visually,' Payne indeed created a vivid tone poem that guides the listener through deserts (Goldston, 2010, n. pag.). But she also added images in the form of a video. She used NASA footage for overhead views of various desert locations, featuring, a sunrise and sunset, lights in Las Vegas and thunderstorms over southern Florida.<sup>25</sup> She herself captured vistas at Mono Lake, Kelso Dunes, Bryce Canyon and Canyonlands on video 'by holding still on an image for

several seconds, then zooming in and out or panning to reveal more detail' (Kalvos and Damian, 2004, n. pag.) with the intention to 'slowly reveal information in various landscapes' (Payne, 2013). Payne explained that her 'earthbound shots are of rather "alien" landscapes—those where I, as a human being, don't really fit in' (Payne, 2013). She seamlessly interwove footage from space flights with her own on-location film material. Opening with a sunrise and closing with dusk, the video presents images of mountains, rock formations, cracks in the earth, vegetation, clouds, rainstorms, and snow, all of which closely correspond to the sonic textures and timbres. Images of red rocks are, for instance, paired with high sounds reminiscent of crickets (4' 59"–5'33"). Compare the still image from the video with the sonogram whose vertical patterns in green visualise the virtual crickets in Figures 1 and 2.

Like *Airwaves* and *Desertsapes*, *Horizon* attests to Payne's acute ecological awareness and gentle environmental activism. She conveys how pristine and fragile these places are. But neither does she narrate the heroic conquest of an inhospitable environment, nor does she present idyllic and unspoiled pastoral scenes catering to the 'tourist gaze' (as does Ferde Grofé in his *Grand Canyon Suite* of 1931; Tolliver, 2004). She conjures up the mysterious beauty of deserts, but also problematises it. She shows the close proximity and interconnectedness of nature, humans, and technology by highlighting the similarity of human-generated and natural sounds. Yet, she also suggests that the physical and often noisy presence of humans signifies an intrusion in fragile environments and human estrangement from nature. In *Horizon*, Payne refrained from employing field recordings collected in the desert and instead converted surreal and remediated human-generated sounds into virtual sounds of nature, pointing to the concept of recycling. Low-impact thinking is also evident in Payne's decision to borrow sounds and footage from NASA, rather than using planes and other equipment to obtain all of the materials needed. Payne demonstrates that not all advanced



**Figure 1.** Maggi Payne, *Apparent Horizon*, Still Image at 5'01". Reproduced with Kind Permission from Maggi Payne.



**Figure 2.** Maggi Payne, *Apparent Horizon*, Sonic Visualization via eAnalysis at 4'58"–5'15". Created with Kind Permission from Maggi Payne.

technology is destructive and that it matters how we use and reuse it. With *Horizon* Payne not only offers an aesthetically intriguing and politically thought-provoking work, but also convincingly shows that technology can help humans perceive and understand nature in new ways.

### Conclusion

Payne, one of few women composers who celebrate the intensity of nature, has created fascinating and provocative desert-inspired works with the intention to alert people to the beauty and delicate ecologies of Southwestern desert landscapes where humans should 'tread lightly' (Kalvos and Damian, 2004, n. pag.). With *Desertscapes*, she persuasively portrays deserts as rich, biologically diverse and pristine bioregions rather than bleak and empty places appropriate for the storage of nuclear waste and the placement of 'huge swaths of wind generators and solar farms tearing up the desert and disrupting its fragile ecology'.<sup>26</sup> With *Airwaves* and *Horizon* she critically exposes imbalances in desert ecologies. All three works stand in stark contrast to sonic picture postcards that exploit deserts and conceal environmental problems by idealizing these locales and by catering to the tourist gaze and mass desert tourism (Urry & Larson, 2012, pp. 4–7). Her music discloses a strong identification with the deserts of the American Southwest and invites listeners to 'feel' these landscapes and critically engage with these and their own environments. As a citizen of the whole earth, Maggi Payne helps us reconnect with and better understand some of our planets' most vulnerable places through music.

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No potential conflict of interest was reported by the author.

## Notes

- [1] The Desert Mothers include Mary of Egypt, Sarah of the Desert, Syncletica and Theodora of Alexandria and the Desert Fathers include Paul of Thebes, Anthony the Great and Pachomius. For more information see (Chryssavgis, 2008).
- [2] Rameau's opera *Zaïs* centers on two unequal lovers, genie Zaïs and shepherdess Zélide, who upon Zaïs's sacrificial destruction of his magic ring find themselves in an unspecified dreadful Middle Eastern-inspired desert. Based on Anatole France's novel of the same title, Massenet's *Thaïs* takes place in ancient Egypt and features the Thebaid desert (Desert Father Pachomius's birthplace). In this opera desert-dwelling monk Athanaël seeks to convert Thaïs, a courtesan from Alexandria and worshipper of Venus, to Christianity.
- [3] *Le Désert* in fact pays tribute to a trip David made to the Middle East and Egypt where he was based in Cairo (1833–1835) and developed a strong fascination with Egyptian deserts. In 1846 Jacques Offenbach parodied David's work with *Citrouillard au Désert* where a *petit bourgeois* who ventures to the desert is unimpressed, missing urban cafés and bars.
- [4] *Irkanda* is an aboriginal word for 'scrub country' or a distant and deserted place.
- [5] Rachel Campbell pointed out that Sculthorpe

had not been to the outback landscapes he often wrote about until he finally visited Kakadu in 1989. Sculthorpe's outback was thus mostly a product of his imagination, as well as being based on existing historical tropes and characterisations of outback landscapes as 'lonely,' 'harsh,' and 'savage'.

She also stated that Sculthorpe's portrayal of Australian deserts is 'quite opposite to comparable Indigenous Australian readings of Australian landscapes' (see Campbell, 2014, pp. 63, 343).

- [6] See for instance the scores of Moross for *The Big Country* (1958), of Steiner for *The Searchers* (1956), and of Tiomkin for *High Noon* (1952), discussed in Kalinak (2011).
- [7] See also Grofé's *Grand Canyon Suite* (1931) for orchestra and Copland's ballets *Billy the Kid* (1938) and *Rodeo* (1942). For more information, see Levy (2012).
- [8] For writer Mary Austin, photographers Ansel Adams and Frederick Sommer, architects Frank Lloyd Wright and Paolo Soleri, visual artists Max Ernst, Georgia O'Keeffe, Dorothea Tanning, and James Turrell the American Southwest has had a magnetic pull as well.
- [9] 'Atomic Culture' (August 2013). Accessed 30 December 2015, [http://www.nv.energy.gov/library/factsheets/DOENV\\_1042.pdf](http://www.nv.energy.gov/library/factsheets/DOENV_1042.pdf). Anti-nuclear songs such as 'Old Man Atom' (1945), 'Atom and Evil' (1946), and 'Atomic Sermon' (1953), responding to the Hiroshima and Nagasaki bombings, were few in the first decades of the McCarthy era when controversial song topics were discouraged. This attitude changed in the 1960s when powerful protest movements emerged.
- [10] Maggi Payne, Email message to author, 16 August 2014.
- [11] The term 'acousmatic music' derives from the Greek word *akousma* which means 'a thing heard' and from the idea that Pythagoras's students listened to his teachings from behind a veil to absorb them without visual distraction. Embraced and advanced by French musique concrète pioneer Pierre Schaeffer, acousmatic music specifically refers to music composed for loudspeakers with the sound's source being unseen. See (Schaeffer, 1966, p. 91).
- [12] Maggi Payne, Email message to author, 31 August 2014.

- [13] Maggi Payne, Email message to author, 16 August 2014.
- [14] Westerkamp's *Cricket Voice* (1987) featuring the sound of a desert cricket resulted from her trip to the Zone of Silence desert region in Mexico. McLean's *Desert Voices* for midi violin and tape (1998) uses field recordings from the American Southwest and Bandt's *Raptor* and Barclay's *Ground Interference* draw on field recordings as well. They were taken from the *Listen*" Project's sound archive of recordings made in national parks of the American Southwest. The works were commissioned for the *Listen*" Symposium hosted by Sabine Feisst, Daniel Gilfillan, and Garth Paine at Arizona State University in 2014.
- [15] The American Automobile Association stated: 'It's totally empty. There are no points of interest. We don't recommend it. We warn all motorists not to drive there unless they're confident of their survival skills'. 'America, the Most', *Life Magazine* (July 1986).
- [16] Maggi Payne, Email message to author, 16 August 2014.
- [17] Ibid.
- [18] Named after Oliver Heaviside, the Heaviside layer is part of the Earth's ionosphere, 50–90 miles above the ground, and allows medium-frequency radio waves to travel much further at night when it is raised than during daytime when it is closer to the Earth due to solar wind. Maggi Payne, Email message to author, 16 August 2014.
- [19] Maggi Payne, Email message to author, 6 September 2016.
- [20] Maggi Payne, Email message to author, 16 August 2014.
- [21] Ibid.
- [22] 'Pyramid Paiute Tribe'. Accessed 16 January 2016. <http://www.plpt.nsn.us/index.html>
- [23] The time indications correspond to the commercially available recording of *Apparent Horizon* on Payne (2010).
- [24] Maggi Payne, Email message to author, 31 August 2014.
- [25] NASA footage is used at: 0:00; 0:10; 3:46; 4:11; 4:50; 5:32; 5:41; 6:03; 6:25; 5:22; 6:59; 7:06; 7:17; 8:42; and 10:22–12:12.
- [26] Maggi Payne, Email message to author, 31 August 2014.

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