Title
Distant Ecologies: Sci-Fi Film Scores and the Music of the Final Frontier

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Publication Date
2022

Peer reviewed|Thesis/dissertation

Distant Ecologies: Sci-Fi Film Scores and the Music of the Final Frontier

By

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DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Musicology

in the

OFFICE OF GRADUATE STUDIES

of the

UNIVERSITY OF CALIFORNIA

DAVIS

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2022

Acknowledgements

I would first like to thank my dissertation committee—Beth E. Levy, Carol A. Hess, and Colin Milburn—for their endless support and the time that they put into reading my work and sharing their thoughts. They have been excited about my research topic since the very beginning, which made the writing process so much easier. I greatly appreciate the time they invested into making me a better scholar, and to ensuring that my research was staying on track and making significant impacts. I also thank them for the countless letters of recommendation over the years, for fellowships, jobs, and everything in between. I would like to specifically thank Beth for her near-weekly support over the past four years. I am so glad that you embraced my research. I cannot thank you enough for every abstract, letter, presentation, chapter, and everything else that you have given feedback on. My committee pushed me to be my best, and I am privileged to have had such an amazing group. I am beyond fortunate.

I would like to thank the College of Letters and Sciences for their financial support of my research. With their summer funding, I was able to conduct an additional research trip and make considerable progress on my writing goals, which enabled me to finish in a timely manner. Thank you to the Graduate Student Association as well for their travel award funding, which also allowed me to conduct research trips and attend national conferences.

I am grateful to the faculty and staff in the Music Department for their unending support of my research and my extracurricular activities and for making this department a welcoming and enjoyable place to conduct my graduate research. Beth, Carol, Pier, Kern, Henry, Jessie Ann, Christian, Mika, Sam, Kurt, Juan Diego, Pablo, Chris, Laurie, Anna Maria, Phil, Josh, Stephen, Nick, Caitlin, Bruce. Special thanks for Marian for being the perfect graduate coordinator. You

all have been nothing short of phenomenal, and I could not have done this without every one of you.

I want to express my thanks to the staff at the libraries that I visited during my two archival trips. For the first trip, the staff in Special Collections at the University of California, Santa Barbara library and the staff at the Margaret Herrick Library in Beverly Hills. For the second, the staff in the Music collections at the Library of Congress in Washington, D.C., especially Paul Allen Sommerfield, whose shared interests in sci-fi have been the source of some excellent conversations over the years that I have known him. I would also like to thank my fellow film music scholars—Gabrielle Cornish, Frank Lehman, Reba Wissner, Michael Harris, and others—who have shared their thoughts on my work with me and engaged in stirring conversations.

My fellow graduate student peers and friends are the people who kept me going day after day. They say that you cannot complete a dissertation alone, and they would be totally correct. My friends, both in and out of the Music Department, were my support network: they were there to celebrate major achievements and to rally my spirits when times were hard. I would also like to specifically thank our Dissertation Writing Group, which met continuously throughout the pandemic and provided a much-needed support group. There are a few that I would like to name here: Gwen Chodur, Daniel Godsil, Esther Delozier, Shazib Elahi, Alex Stalarow, Michael Accinno, Will Dorsey, John Parker, Mike Dorato, Adam Kunesh, David Grzan, and many others.

During my first archival research trip to Los Angeles in summer 2019, I was fortunate to be housed by Randy and Gene Bostic, who were the parents of my friend, Darcy. They were incredibly hospitable and gave me a great social outlet at the end of a long day in the archives. I

remember my first introduction to Malibu Seafood, and (joyfully) practicing trombone in the bottom floor of their home while they listened. I remember the plum tart that we baked using fresh plums from the tree right outside their front door, and I remember cooking a wonderfully tasty harissa chicken dish for them two Fridays in a row, just as a small token of my gratitude. Those two weeks were the highlight of my summer. Unfortunately, both Randy and Gene have since passed away. I dedicate my Third Chapter to them.

I would like to thank all the staff and administrators at UC Davis whom I have had the pleasure of developing close relationships with. The staff in Graduate Studies are such a pleasure to work with and are some of the most supportive people at Davis. I would like to specifically thank Dean Jean-Pierre Delplanque, Chancellor Gary S. May, and Provost Mary Croughan for their partnership in graduate student advocacy and for being fantastic mentors. It was my pleasure to serve as the Graduate Student Association president for four years and to cultivate such rich relationships with these campus leaders.

Lastly, I want to thank my family, who have been so supportive throughout graduate school. Mom, Dad, and Caroline: your support of my intellectual and academic endeavors is something that I will never forget. You have loved me unconditionally, and I am exceptionally grateful to call you family. Special thanks to my girlfriend, Lily, who was there to celebrate the highs, and supported me during the lows. It was a long and arduous journey, but you have been the best partner I could have asked for during these tough years. Finally, a big thank you to my two lovely pets, Finnegan and Rufus, who have been mainstays of my life as a graduate student and made my trips home warm and fuzzy.

Abstract

In 1950, sci-fi entered its Golden Age in Hollywood with film premieres that established sci-fi as a major cinematic genre. These films, however, sounded dramatically different from other films at the time, as sci-fi's extraterrestrial settings and characters encouraged composers to experiment with their scores and distance themselves from the classical Hollywood style. This dissertation investigates science fiction films from the 1950s, 60s, and 70s, which I believe are the most decisive decades in the development of cinematic science fiction. Film music scholar Vivian Sobchack wrote in 1987 that sci-fi lacked a notable sound compared to genres like westerns and noirs, but through these three decades, I show that composers not only experimented in their scores, but also established cliches and tropes that would define the sound of sci-fi and used these associations to construct the soundworlds of outer space. My ecomusicological study of *Destination Moon* (1950), *Rocketship X-M* (1950), *The Day the Earth Stood Still* (1951), *Forbidden Planet* (1956), *Planet of the Apes* (1968), *Alien* (1979), *Star Trek: The Motion Picture* (1979), and *Star Wars* (the original trilogy) pushes the boundaries of ecomusicology to the distant ecologies of outer space. By studying the interaction between these scores—which included electronic instruments like the theremin and state-of-the-art synthesizers, serialism, primitivism, unfamiliar timbres, and several other unconventional Hollywood practices—and distant ecologies, charting a new area in the Final Frontier for film music scholars and ecomusicologists to explore.

While composers like Ferde Grofé, Bebe Barron, and Jerry Goldsmith paid close attention to how their scores represented outer space landscapes, these films also explored a variety of social and cultural critiques, many of which are ecological and related to the developments of the Space Race and the Cold War. Firstly, I explore the ambivalent attitudes

toward technology. These films celebrate our ability to travel to distant planets but critique nuclear weaponry and its capability for immense ecological destruction. I show that composers often paired strange timbres and unconventional instruments with outer space settings and aliens, suggesting that we should be frightened by advanced technology. On the other hand, more conventional, swashbuckling themes conjured feelings of excitement and adventure at the prospect of exploring other planets and galaxies. Secondly, many films present a blurry mechanical-biological binary. I show that characters like Robby the Robot, Darth Vader, C-3PO, and the Krell complicate the distinction between man and machine, and that the Barrons's life-like cybernetic sound circuits for *Forbidden Planet* further blur the mechanical-biological binary, for example through Ben Burtt's processing of organic sounds to create inorganic sound effects. Lastly, I examine issues related to imperialism on the Final Frontier. The human interaction with other planets and extraterrestrials evokes the concepts of manifest destiny and imperialism, which map onto varied narratives of conflict between humans and extraterrestrials. Through my analysis of these films, I show that extraterrestrials are sonically "othered" using electronic instruments, atonality, or strange timbres, standing in sharp contrast to the conventional Hollywood orchestra, representing the familiar and the human.

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Introduction

In the last decade, Hans Zimmer composed two acclaimed scores for sci-fi films with aggressive ecological themes: *Interstellar* (2016), where the characters frantically search for habitable planets as the Earth's environment deteriorates, and *Dune* (2021), where factions wage war with one another on the desert planet Arrakis to extract and control "spice," which gives the user enhanced vitality and consciousness. Critics have discussed how Zimmer's score for *Interstellar,* with its arresting organ and heavy brass, sounded a bit like Philip Glass's score for *Koyaanisqatsi* (1982), a non-narrative, visual tone poem with music that underscores various time lapse footage from natural landscapes across the United States.[1] This musical connection to an ecologically focused film like *Koyaanisqatsi* encourages us to consider how Zimmer's music may offer its own perspective on distant ecologies.[2] For *Dune*, Zimmer stated that sci-fi appealed to his desire to do something different. He said, "I felt like there was a freedom to get away from a Western orchestra. I can spend days making up sounds."[3] There are many interesting and unusual sounds in Zimmer's score, ranging from instruments not usually found in Hollywood studios, including some invented by performers on the record, to recorded and manipulated sounds. For Zimmer, embedding the sound of the landscape within his score was also important.

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[1] Tim Robey, "Interstellar, First-Look Review: 'Close to a Masterpiece,'" The Telegraph, October 27, 2014, https://www.telegraph.co.uk/culture/film/filmreviews/11174967/Interstellar-first-look-review-close-to-a-masterpiece.html.

[2] Mark Richards, "Oscar Nominees 2015, Best Original Score (Part 5 of 6): Hans Zimmer's Interstellar – Film Music Notes," *Film Music Notes* (blog), February 18, 2015, https://filmmusicnotes.com/2015/02/18/oscar-nominees-2015-best-original-score-part-5-of-6-hans-zimmers-interstellar/. *Koyaanisqatsi* also highlights how technology is entrenched in our everyday experience of the world. See Mitchell Morris, "Sight, Sound, and the Temporality of Myth Making in Koyaanisqatsi," in *Beyond the Soundtrack: Representing Music in Cinema*, ed. Daniel Goldmark et al. (Berkeley: University of California Press, 2007), 120–35, http://ebookcentral.proquest.com/lib/ucdavis/detail.action?docID=922914.

[3] Darryn King, "How Hans Zimmer Conjured the Otherworldly Sounds of 'Dune,'" *The New York Times*, October 22, 2021, sec. Movies, https://www.nytimes.com/2021/10/22/movies/hans-zimmer-dune.html.

To capture the sonic essence of a desert on a distant alien planet, for example, Zimmer traveled to Utah "to hear the wind howling."[4]

Ecology and environmental concerns are two principal concerns with both *Interstellar* and *Dune,* which are relevant to the current climate situation here on Earth. However, ecological issues have always been a major focus of sci-fi, dating back as far as the earliest examples in the genre and especially in film, with examples like *The Day the Earth Stood Still, Planet of the Apes,* and *Soylent Green.* But the ecological concerns of contemporary films are different from those of previous decades. Zimmer's understanding of contemporary sci-fi films as a means to escape the conventional western orchestra and explore new sounds builds upon the foundation of composers over half a century earlier. Bernard Herrmann, Jerry Goldsmith, Bebe Barron, and the other composers treated in this dissertation each offered their own musical visions of what outer space ought to sound like and how filmmakers and composers could use outer space settings to offer their own opinions on terrestrial concerns of the 1950s, 60s, and 70s, like our use of technology, nuclearization, and imperialist behaviors. These composers also drew inspiration from each other, yet some of the literature on sci-fi music in the intervening decades has struggled to identify the cohesive soundworld they built for these extraterrestrial environments.

Vivian Sobchack, in the third chapter of *Screening Space: The American Science Fiction Film*, argues that science fiction music is most notable for its indefinable characteristics.[5] She states that "although sci-fi music sounds the same from film to film, sci-fi music has no characteristic sound," as compared to genres like the Western and gangster films, which have clearly defined source music. This critique of science fiction soundtracks allows her to focus on

[4] King.
[5] Vivian Carol Sobchack, *Screening Space: The American Science Fiction Film*, 2nd, enl. ed. (New York: Ungar, 1987).

dialogue and sound effects, but her statement clearly sparked a rebuttal from several scholars who argue that composers selected particular avant-garde techniques and electronic instruments to evoke extraterrestrial topics, narratives, and beings.[6] In this dissertation, I aim to deepen our understanding of sci-fi soundworlds by exploring their ecological implications.

Film music history often starts in the 20th century, in the Silent Film era, where chamber orchestras or sometimes a single pianist would provide a live accompaniment to projected images. The Silent Film period extended to the 1920s, when music was recorded for films and then, later in the decade, synchronized with the image track, first demonstrated in *The Jazz Singer* (1927). This advancement spawned many "talkies" which contained very little music, as the now audible dialogue was the focus for producers.[7] During Hollywood's so-called Golden Age, from around 1930 until about 1960, major studios attracted the best talent in acting, directing, screenwriting, and composing to Los Angeles. Classically trained composers from both Europe and the United States established what is known as the Classical Hollywood Style, a compositional approach based on the romantic styles of Richard Wagner, Richard Strauss, Giacomo Puccini, and Pyotr Ilyich Tchaikovsky. Most importantly, many composers used a modified Wagnerian leitmotivic structure, using short melodies as musical symbols for onscreen developments. Wagner's "endless melody" was also very successful for film music, as it could provide a seamless musical underscoring.

[6] Her most notable detractor is James Wierzbicki, who mentions this claim in several of his publications on sound and science fiction.

[7] Steven Watts, "Alfred Hitchcock on Music and Films," in *Celluloid Symphonies: Texts and Contexts in Film Music History*, ed. Julie Hubbert (Berkeley: University of California Press, 2011). 165. "Producers and directors were obsessed by words. They forgot one of the greatest emotional factors in the silent cinema was the musical accompaniment."

Film music of the mid-century was firmly entrenched in the Classical Hollywood Style, though some offered their own visions of how film scores could (or should) evolve. In their 1947 book *Composing for the Films*, Theodor Adorno and Hanns Eisler challenged film producers and composers of the mid-twentieth century to reimagine the sounds that accompany films.[8] They protested the film music of the period, stating that it was uninventive and antiquated. Instead of continuing to produce what they considered uninspiring film soundtracks, Adorno and Eisler advised composers to embrace more avant-garde techniques in their scoring practices and suggested that the soundtrack bears equal importance to the images on the screen. In the following decades, several film composers such as Bernard Herrmann, Leith Stevens, Louis and Bebe Barron, John Williams, and Jerry Goldsmith composed innovative soundtracks that propelled science fiction to become one of the most fascinating and popular film genres. Film music scholars looked to science fiction films for discourses on technology and its peril and promise, colonialism, gender, environmentalism, and American cultural and psychological development.

Although sci-fi's Hollywood history didn't begin in earnest until 1950, sci-fi was thriving in other media a few decades earlier, particularly in literature. In literature, many authors and fans agree that the Golden Age began in the late 1930s, led primarily by author and editor John W. Campbell, editor of the *Astounding Science Fiction* magazine. The July 1939 issue of *Astounding Science Fiction* is often referred to as the marker of the beginning of the Golden Age because the issue included several fantastical stories from famed authors A. E. van Vogt and Isaac Asimov. Sci-fi author John C. Wright recognized Campbell's July 1939 issue as the "one

[8] Theodor W. Adorno and Hanns Eisler, *Composing for the Films* (New York: Continuum, 2007).

that started it all." However, in 2010, author Robert Silverberg argued in an essay that the true Golden Age began in the 1950s, calling the 1939–1942 period a "false dawn," and backing up his position by stating that the market demand for science fiction books did not exist in the previous decade.[9] From the mid-1940s to the early 1950s, sci-fi was successfully spreading into other media, including radio, television, and eventually cinema, spurred on by a growth in popularity due, in part, to an increase in supposed extraterrestrial incidents on Earth.

James Wierzbicki writes that "it was not until the 1950s that science-fiction cinema worldwide began to concentrate on themes extra-terrestrial."[10] He cites several reasons why this shift occurred, pointing especially to major technological developments in rocket science, energy, and weaponry, such as atomic and hydrogen bombs, but he also argues that several highly publicized UFO sightings in the late 1940s drummed up significant interest in them as cinematic subjects. On June 24, 1947, Kenneth Arnold, a civilian pilot from Boise, Idaho, spotted what he believed to be a group of nine unidentified flying objects (UFOs) flying around Mount Rainier in southwestern Washington while he was flying his plane through the airspace on his way to Yakima. Arnold estimated that the UFOs, which he said were "shiny, flat objects" were traveling at speeds over 1,700 miles per hour, which was far faster than any aircraft on the Earth, and only slower than a V-2 rocket.[11] Arnold first reported his sighting to the *East Oregonian* the next day.[12]

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[9] Robert Silverberg, "Science Fiction in the Fifties: The Real Golden Age," American Science Fiction: Classic Novels of the 1950s, August 25, 2012, https://web.archive.org/web/20120825082507/http://www.loa.org/sciencefiction/why_silverberg.jsp.
[10] James Wierzbicki, "The Imagined Sounds of Outer Space," *Journal of Sonic Studies*, no. 8 (January 12, 2014): 6.
[11] Megan Garber, "The Man Who Introduced the World to Flying Saucers," *The Atlantic,* June 15, 2014, https://www.theatlantic.com/technology/archive/2014/06/the-man-who-introduced-the-world-to-flying-saucers/372732/.
[12] Pierre Lagrange, "It Seems Impossible, But There It Is," in *Phenomenon: From Flying Saucers to UFOs - Forty Years of Facts and Research*, ed. John Spencer and Hilary Evans (London: Futura Publications, 1988), 26–45.

A similar UFO sighting happened just a few months later in Roswell, New Mexico. The sighting revolved around a military balloon crash near Roswell, following its launch from the Alamogordo Army Airfield in June 1947. The actual date of the crash is unknown, but the wreckage was discovered by William Brazel, who worked on a ranch near the crash site.[13] Both Brazel and the military reported that they may have found debris related to the wreckage of a "flying disc," which sparked immediate nationwide news interest, coming on the heels of the incidents in Washington. The military changed its tenor quickly, suggesting instead that it was probably a weather balloon, covering up their knowledge that the device was actually used for nuclear testing monitoring; this action instantly quelled flames and the Roswell story faded away for two decades.[14]

In the 1970s, conspiracy theorists, led primarily by a group of UFO researchers: Stanton T. Friedman, William Moore, and Karl T. Pflock, revived the story and pushed their theory that the debris found outside Roswell belonged to a UFO. The team reconstructed the events at Roswell by interviewing hundreds of people and compiling that information with records they gained through Freedom of Information Act (FOIA) requests. All this data collection resulted in a series of popular book publications in the 1980s, the first being *The Roswell Incident* by Charles Berlitz and William Moore, and their central story was that an alien spacecraft had flown over the desert and crashed after being struck by lightning.[15]

The persistence of these conspiracy theories over the decades from 1940 to 1990 signals that the social engagement with these sightings and with technology and space travel in general

[13] "New Mexico Rancher's 'Flying Disk' Proves to Be Weather Balloon-Kite," *Fort Worth Star-Telegram*, July 9, 1947. 1, 4.
[14] "New Mexico Rancher's 'Flying Disk' Proves to Be Weather Balloon-Kite."
[15] Charles Berlitz, William L Moore, and Jack Eadie, *The Roswell Incident* (New York: Grosset & Dunlap, 1980).

was not entirely trusted by the American public. Wierzbicki suggests that there may be a link between the increased number of UFO reports and sightings and the heightened social paranoia because of the growing Cold War tensions between the United States and the Soviet Union. The attention to the UFO sightings nationwide, paired with the social paranoia caused by the lingering threat of the Soviet Union, were clear subjects in many films from the early 1950s, as the popularity of sci-fi in Hollywood was heating up and Cold War tensions were chilling.

The Golden Age of science fiction cinema began decisively in 1950 with an explosion of over 100 films, sparking decades of growth that doubled the number of science fiction films produced annually in just half a century.[16] The budgets for these early science fiction films were often very small, resulting in films that were frequently relegated to "B movie" status. Whereas B movies were often included in the first half of a double feature in the 1930s and 40s, the B movies of the 1950s were often feature-length. Whatever their length, these B movies offered veiled social and cultural critiques of American society. In the following two decades, the length of science fiction films grew rapidly, and feature-length films became standard by the early 1960s. As the popularity of science fiction films increased, film directors slightly retracted the veil and placed social and cultural critiques at the forefront of popular media.

[16] mike_sean, "Sci-Fi Cinema in the 1950s," IMDb, accessed February 26, 2019, http://www.imdb.com/list/ls000095986/. The author, username "mike_sean," notes in the description of this collection that it "uses a fairly strict definition of science fiction, and therefore does not include most films that deal with fantasy, the supernatural, or superheroes." This list also excludes horror. Locating a conclusive definition of science fiction is tricky, and many authors from the 1920s to the 2000s have their own independent definitions. John Clute and Peter Nicholls, authors of *The Encyclopedia of Science Fiction*, agree that Darko Suvin's definition is most adequate for spurring academic discourse. Suvin's definition is: "a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment." This definition is quite broad, but it mentions setting and environment, which is crucial for this study.

Science fiction films frequently present conflicts between the characters and the setting, either with extraterrestrials visiting Earth or humans traveling to distant planets. These interactions create significant tension, as the visitors are perceived as a violent threat by the local inhabitants. A brief review of science fiction films illustrates colonialist behaviors and a general inclination for environmental destruction and domination by both humans and aliens. Science fiction films depict futuristic robots, hostile landscapes, adventurous astronauts, and threatening aliens. In the pages that follow I aim to show how sounds can shape viewers' perception of these settings and characters. From electronic instruments to unconventional scoring and compositional practices, composers seemed to have chosen sci-fi as a perfect sandbox for attempting approaches that departed from conventional scoring to explore new extraterrestrial settings and beings.

This dissertation investigates science fiction films from the 1950s, 60s, and 70s, which I believe are the most decisive decades in the development of cinematic science fiction. My ecomusicological study of *Destination Moon* (1950), *Rocketship X-M* (1950), *The Day the Earth Stood Still* (1951), *Forbidden Planet* (1956), *Planet of the Apes* (1968), *Alien* (1979), *Star Trek: The Motion Picture* (1979), and *Star Wars* (the original trilogy), pushes the boundaries of ecomusicology to the distant ecologies of outer space, offering observations on the relationship between music and outer space environments, and charting a new area in the Final Frontier for film music scholars and ecomusicologists to explore. Ecologically, I use these films to discuss issues related to technological advances, both in our ability to travel to distant planets and in our development of nuclear weaponry and its capability for immense ecological destruction. I also consider the human interaction with these other planets, engaging with the concepts of manifest

destiny and imperialism to elucidate these films' varied narratives of conflict between humans and extraterrestrials.

Literature Review

The scholarly context of my research intervention is framed by two questions: 1) what is the relationship between science fiction film scores of the 1950s, 60s, and 70s and the various landscapes of outer space? And 2) What are the environmental and ecological implications of the compositional choices composers made when engaging with outer space? This dissertation sits at the intersection of four scholarly areas: science fiction film and society, film music criticism, technology studies, and ecomusicology. My research topic merges all these areas, covering an ecomusicological gap in film music scholarship that these areas have yet to address. As our society continues to extend its reach into outer space and sci-fi films have become increasingly focused on ecological matters, this study is imperative for understanding how we have historically envisioned these extraterrestrial spaces.

Science Fiction: Sociology and Culture in Cinema

Sci-fi films are often the focus for scholars looking to draw connections between society and art, and as a result, science fiction films of the 1950s have received the most scholarly attention as windows into social behavior and sentiments of the Postwar era and the Cold War. One of the most cited publications in this conversation is Cyndy Hendershot's *Paranoia, The Bomb, and 1950s Science Fiction.* Hendershot argues that the nuclear developments in science fiction films of the 1950s reflected the paranoia of American society in the postwar era.[17] By undertaking a quasi-scientific psychological analysis of the behaviors of the fictional characters

[17] Cyndy Hendershot, *Paranoia, The Bomb, and 1950s Science Fiction Films* (Bowling Green, OH: Bowling Green State University Popular Press, 1999).

and populations in these "B-films," Hendershot postulates that Americans of that period were anxious about the seemingly limitless potential of nuclear power. Furthermore, the weaponization of this technology in science fiction narratives reflected significant fear of potential enemies that lay beyond American borders.

Focusing on American anxiety about the nuclear era in film, M. Keith Booker explains how science fiction films mirrored American culture differently in different decades.[18] For example, films of the 1950s focus on space exploration and the prospects of future space expeditions, all with undertones of Cold War competition. Booker mentions that the 1960s were ripe with optimistic attitudes toward technology and the future success of the United States, but he shows that films of this decade instead illuminated the cultural skepticism about the imagined future. Booker then argues that 1970s science fiction cinema brought more "serious" artistic efforts that directly referenced the Cold War and environmental concerns, through films like *Soylent Green* (1973) and *Logan's Run* (1976). Along with other scholars who have offered critical perspectives on the American and British science fiction films and the Cold War undertones that inflect their narrative structures (Bushard, 2009; Berger, 1978; Vizzini, 2008; Jones, 2018; Sontag, 2004), these authors inform my own study by showing that a deep investigation of sci-fi narratives often reveals critical messages pertaining to social, cultural, and political events of the era. I argue that many of the ecological issues that are brought up in these sci-fi films are the direct result of human interaction, whether it is in the conquest of distant spaces, or the negative effects of developing advanced technology, such as nuclear weaponry or spaceships.

[18] M. Keith Booker, *Alternate Americas: Science Fiction Film and American Culture* (Westport, Conn.: Praeger, 2006). For a similar analysis of the reception of science fiction films in British society see Matthew Jones, *Science Fiction Cinema and 1950s Britain: Recontextualizing Cultural Anxiety* (New York: Bloomsbury Academic, 2018).

Technology: Sounds of Science Fiction's Technological Future

Technological development during this era inspired a body of fictional literature and film that emphasized society's fear and apprehension of its overuse, especially during the 1950s as space exploration moved from fiction to reality. There are countless examples of literature and film that display this ambivalent reaction to technology, though there are plenty others from the same era that celebrate its eventual acceptance as a force for good. In addition to their impact on social behavior, technological developments and their overuse can cause irreparable damage to ecosystems both on Earth and on distant planets. Despite technology's ability to bring human beings to other planets, scholars writing on these subjects only lightly discuss how extending humanity's reach into outer space creates a scenario where human involvement can negatively impact distant ecologies. The literature on technology in sci-fi falls into two categories: discussing its role in soundtrack production and analyzing the portrayal of technological advances in science fiction literature and film.

Trace Reddell's recent book, *The Sound of Things to Come,* provides an in-depth analysis of sound as it is used in science fiction films.[19] Reddell's study covers nearly 70 years of science fiction, beginning with the earliest instances of sound and science fiction in 1924 and extending to popular films of the late 70s and 80s such as *Star Wars* and *Alien*. Through these films, Reddell claims that "the overarching relevance of sound in the sci-fi film has less to do with music per se than to our understanding of science fiction as a tool for technoculutral navigation."[20] Reddell's analysis focuses on technology and music, specifically on sonic

[19] Trace Reddell, *The Sound of Things to Come* (University of Minnesota Press, 2018), https://doi.org/10.5749/j.ctv69t6p0.
[20] Reddell, 8.

innovation. He finds that "sci-fi films have profoundly changed the way we listen," and that "given how significant the role of sci-fi cinema has been as a site of sonic innovation, it is surprisingly unexplored." Reddell's study advances our understanding of how technological innovation over several decades changed the sounds that composers and producers used to curate outer space environments. This study also considers music and sound production, which informs my research regarding the studio techniques and sound processing technologies utilized by composers like Bernard Herrmann and Jerry Goldsmith, but also highlights how electronic instruments, like the theremin, have a distinct role in creating the sci-fi soundworld. While focusing on sci-fi narratives, Reddell's investigation gives insight into understanding how sound in science fiction film exists as a "cultural artifact, object, and experience."[21]

Andrew Huebner's research on technology in science fiction films of the 1950s suggests a new emphasis on the environment over more anthropocentric themes.[22] Huebner considers several critical lenses in his analysis: ecocriticism, economics, politics, and postcolonialism. His examination of the portrayal of technology in these films is important because it reconsiders the American fascination with technology, emphasizing technology's implementation as a destructive force. He tracks the evolving perception of technology over the course of the Cold War, showing American society's growing interest in the environmental movement, and growing concerns about the relationship between humans and technology, and global population growth. Huebner examines the role of technology in the narratives of several films from the 1950s, including *The Beast from 20,000 Leagues* and *The Day the Earth Stood Still*. He concludes that technology was

[21] Reddell, 8.
[22] Andrew J. Huebner, "Lost in Space: Technology and Turbulence in Futuristic Cinema of the 1950s," *Film & History: An Interdisciplinary Journal* 40, no. 2 (2010): 6–26, https://doi.org/10.1353/flm.2010.0013.

overwhelmingly linked to destruction and terror, but that there were a surprising number of instances where technology saved both the planet and humanity. While not dealing directly with sound, this study confirms that science fiction films of the 1950s frequently displayed technology's ties to ecology and environmentalism, applicable both on Earth and elsewhere.

Because of humankind's fraught relationship with technology, it can be presented through literature and film as either divisive or unifying. Nicholas Laudadio points to several short stories that use music and technology—particularly the electronic synthesizer—to show two sides of the societal reactions to technology: fear and hope for salvation.[23] Analyzing Charles Harness's "The Rose" (1953), Laudadio shows that electronic music can bridge the divide between art and science. In it, the synthesizer transforms complex mathematical equations into song, which allows for new music but simultaneously dehumanizes, as the machines begin to take over our creative work. In the films I engage with in this dissertation, technology is presented as something that is frightening, but also incredibly powerful and potentially progressive. The narratives show ambivalence toward technology, but there are much less nuanced associations in the music. As we will hear the theremin and various electronic instruments are often used as a mysterious, eerie timbre that primarily drives a fear of advanced technology. Technology that is beneficial is not usually paired with electronic instruments or synthesizers, and instead composers used conventional instrumentation and romantic scoring techniques.

[23] Nicholas C. Laudadio, "'Sounds like a Human Performance': The Electronic Music Synthesizer in Mid-Twentieth-Century Science Fiction," *Science Fiction Studies* 38, no. 2 (2011): 304–20, https://doi.org/10.5621/sciefictstud.38.2.0304.

Combining Laudadio's interest in music and Huebner's observations on technology in film, my research asks how technology and music work together in both positive and negative ways, especially as they pertain to the ecologies of outer space environments. Trace Reddell's publication is the most like my own research, though it focuses much more on technology and sound and does not critically engage with ecological matters. Furthermore, it is interesting that several of these authors consider the theremin within their study, but their analysis is often cursory and non-musicological. My research works in tandem with the work of the other scholars considered in this portion of this literature review, by examining human interaction with outer space environments and extraterrestrials and the repercussions of space exploration, as well as technology's weaponization for conquest and control of distant lands.

Film Music: Soundtracks of Outer Space

To connect the technology of sci-fi with the music that underscores it, I investigate how scholars differentiate between traditional and avant-garde scoring practices and their effects on our understanding of the film's characters and narratives. Scholars of science fiction film examine the well-known psychological effects of film music in a context marked by technology and alien or alienating landscapes.[24] Additionally, reviewing this body of literature reveals that science fiction film music criticism has yet to engage ecological issues.

Jeremy Barham investigates the dichotomy between two compositional techniques in science fiction films, connecting the soundtracks to utopian and dystopian narratives.[25] He

[24] Dean Keith Simonton, "Film Music: Are Award-Winning Scores and Songs Heard in Successful Motion Pictures?," *Psychology of Aesthetics, Creativity, and the Arts* 1, no. 2 (May 2007): 53–60, http://dx.doi.org/10.1037/1931-3896.1.2.53. And, Claudia Gorbman, "The State of Film Music Criticism," *Cineaste* 21, no. 1/2 (January 1995): 72–74.
[25] Jeremy Barham, "Scoring Incredible Futures: Science-Fiction Screen Music, and 'Postmodernism' as Romantic Epiphany," *Musical Quarterly* 91, no. 3/4 (Fall/Winter 2008): 240–74, https://doi.org/10.1093/musqtl/gdp001.

distinguishes between the post-romantic, traditional Hollywood soundtracks of films like *Metropolis* (1927) and *Star Wars: A New Hope* (1977) and the electrified or avant-garde techniques offered by *Rocketship XM* (1950), *Forbidden Planet* (1956), and *Planet of the Apes* (1968) during the 1950s and 60s. William McGinney, whose dissertation investigates dystopian science fiction film soundtracks, shows that these soundtracks "reflected concerns about social and ecological changes occurring in the late 1960s and early 1970s."[26] While McGinney focuses exclusively on the sounds of dystopian environments and social activism from 1966 to 1976, I push his study of dystopia further to the ecological themes presented in these films, which in many cases revolved around the threat of nuclearization on the environment, especially in *The Day the Earth Stood Still* and *Planet of the Apes*.

Scholars have argued that several electronic instruments and compositional techniques developed deep associations with the extraterrestrial through their use in sci-fi film scores. Musicologist James Wierzbicki demonstrates the theremin's frequent use in science fiction films of the 1950s, connecting the theremin with the "voice" of the extraterrestrials that figure in films such as *Rocketship X-M* (1950), *The Day the Earth Stood Still* (1951), and *It Came from Outer Space* (1953)—among others.[27] He analyzes many facets of science fiction films, most importantly sound and technology and how the two reinforce futuristic plots and alien characters. His contributions touch on ecomusicological topics by suggesting that characters from outer space are given a particular set of electronic sounds, which could indicate that the sound of outer space is

[26] William Lawrence McGinney, "The Sounds of the Dystopian Future: Music for Science Fiction Films of the New Hollywood Era, 1966–1976" (Ph.D., Denton, University of North Texas, 2009), https://search.proquest.com/dissertations/docview/304961942/abstract/EFD0E36162794014PQ/6.
[27] James Wierzbicki, "Weird Vibrations: How the Theremin Gave Musical Voice to Hollywood's Extraterrestrial 'Others,'" *Journal of Popular Film & Television* 30, no. 3 (Fall 2002): 125–35, https://doi.org/10.1080/01956050209602849.

electronic, as opposed to the acoustic sounds of Earth. For my purposes, Wierzbicki's scholarship is particularly useful because it demonstrates how electronic music was critical in developing the sound of the alien "Other."

In reference to acoustic scoring practices, Jon Fitzgerald and Philip Hayward's close examination of *The Planet of the Apes* complements Barham's and Wierzbicki's conclusions and outlines Jerry Goldsmith's soundtrack's association with the "upside-down" social structure of the post-nuclear Earth.[28] This research mirrors Wierzbicki's in that it focuses mostly on the narrative and characters, while making only subtle, perhaps even accidental, ecological references. For example, they draw comparisons between the primitivist aspects of the soundtrack, such as drumming and woodwinds, and the absence of advanced technology in the new ape regime. Additionally, their quotations from an interview with Goldsmith show that he believed electronic sounds had become cliché by the 1960s. Just as Wierzbicki's research informs my readings of electronic music, Fitzgerald and Hayward's work stimulates my awareness of how acoustic, contemporary compositional techniques are equally able to suggest extraterrestrials and outer space environments.

My research offers new ecological readings of the science fiction films I listed earlier in this document. While previous scholars have focused more on the relationship between the soundtrack and narrative or character design, my study broadens the scope to include the entire landscape, not just the beings that exist within. To achieve this goal, I incorporate analytical methods similar to those used by the scholars addressed in this section, while providing an

[28] Jon Fitzgerald and Philip Hayward, "The Sound of an Upside-Down World: Jerry Goldsmith's Landmark Score for Planet of the Apes (1968)," *Music and the Moving Image* 6, no. 2 (2013): 32–43, https://doi.org/10.5406/musimoviimag.6.2.0032.

ecomusicological perspective that will address the entire ecology of these films. My research examines a variety of film scoring techniques, ranging from conventional, romantic scoring practices to fully electronic film scores, each with potential ecological ramifications ranging from the sense of adventure brought about by outer space travel and an appreciation of its natural beauty, to the killing of native aliens and destruction on a planetary scale.

(Eco)musicology: Music, Sound, and the Environment

Ecomusicology is the primary driver in my study of these films and using existing literature I want to focus on two themes: environmentalism and the relationship between music and nature. Ecomusicology has grown significantly since its formation in the 1990s. To date, scholars in this subfield have focused primarily on terrestrial matters. However, the theoretical frameworks and conclusions offered here graft well onto my study of sound in outer space environments.

Neil Lerner's article, "Copland's Music of Wide-Open Spaces: Surveying the Pastoral Trope in Hollywood," is not explicitly ecomusicological, but it is place-oriented and considers the set of sounds that could be associated with a given setting.[29] Lerner surveys a collection of Copland's film scores from the 1930s and 40s, arguing that his music is "remarkably nuanced, sophisticated, and even subversive in the ways it introduces formerly elitist modernist features into a more widely comprehended musical and cinematic vocabulary."[30] By examining different instances of Copland's cinematic pastoral mode, which he reused throughout several of his film scores, highlighting its "homophonic texture, disjunct melodies set against conjunct bass lines…

[29] Neil Lerner, "Copland's Music of Wide Open Spaces: Surveying the Pastoral Trope in Hollywood," *Musical Quarterly* 85, no. 3 (2001): 477–515, https://doi.org/10.1093/musqtl/85.3.477.
[30] Lerner. 478.

[and] fondness for fourths and fifths, both harmonically and melodically," Lerner connects Copland's pastoral style to nostalgia, noting that it evokes a sense of longing for a specific place.[31] Lerner's research on Copland's pastoral film music informs my own study by identifying the musical elements that contribute to the construction of an environment and highlighting the sentiments that result from that sonic connection. By emphasizing the composers' compositional choices, both acoustic and electronic, in the films I study, I can more accurately define the sound of science fiction environments and establish an ecomusicological link to outer space.

In addition to defining the sounds associated with a specific environment, it is also important to consider the ramifications of such musicological research and how it fits within a larger discussion on the roles of music and sound in various environments. The 2014 *Journal of the American Musicological Society* colloquy on ecomusicology, convened by Aaron S. Allen, guided musicologists to consider the ways our scholarship can impact our understanding of human relationships with nature.[32] His contribution to the colloquy calls on musicologists to reconsider their approaches to music research, especially given the looming global environmental disaster. In closing, Allen suggests that ecomusicological research has "the possibility to offer new *social critiques* about the intersections of music, culture, and nature—and, in general, about the world around us."[33] Thus a *modus operandi* for ecomusicology was established, and a theoretical framework that I adopt for this study of sci-fi film scores.

Recent scholarship has contributed greatly to our understanding of music's close ties with the natural world and how musicology can figure in environmental activism. Allen argues in his

[31] Lerner. 483.
[32] Aaron S. Allen, "Prospects and Problems for Ecomusicology in Confronting a Crisis of Culture," *Journal of the American Musicological Society* 64, no. 2 (2011): 414–24, https://doi.org/10.1525/jams.2011.64.2.414.
[33] Allen. 418.

2012 contribution to *Invaluable Trees: Cultures of Nature* that ecomusicologists can engage with the histories and ecological impacts of instrument making.[34] While Allen focuses on the Paneveggio forest, home to the wood of choice for the famous violin luthier, Antonio Stradivari, he demonstrates that every instrument has an ecological history, which undergirds my analysis of Bebe and Louis Barron's sound machines and their cybernetic, human-like construction. Tyler Kinnear's 2017 dissertation engages with music and the natural environment to show "how nature is imagined in a contemporary musical context."[35] His study covers themes of technology and transformation of the environment, with the purposes of "illuminating the relationship between humans and the natural world." Kinnear analyzes a diverse array of compositions, ranging from R. Murray Schaffer's *The Princess of the Stars*, which takes place on a lake, to electroacoustic compositions by Hildegard Westerkamp and Paul Rudy. This research is significant for me because it clearly details the concepts of nature as a space and how contemporary music operates within a given natural environment. Additionally, his focus on environmentalism and the musical and human relationship with nature, which includes both the performance of the music and its natural venue, shapes my own thinking on how sounds facilitate the interaction between humans and the environment.

Musicologist Alexander Rehding believes that music, as opposed to the narrative arts (mainly literature), which often utilize apocalyptic themes, has the distinct capability of drawing attention to environmental concerns through nostalgia.[36] Science fiction films often engage in

[34] Aaron S. Allen, "'Fatto Di Fiemme': Stradivari's Violins and the Musical Trees of the Paneveggio," in *Invaluable Trees: Cultures of Nature, 1660-1830*, ed. Laura Auricchio and Elizabeth Heckendorn Cook, 2012.
[35] Tyler Kinnear, "Music in Nature, Nature in Music: Sounding the Environment in Contemporary Composition" (University of British Columbia, 2017), https://doi.org/10.14288/1.0345596.
[36] Alexander Rehding, "Ecomusicology between Apocalypse and Nostalgia," *Journal of the American Musicological Society* 64, no. 2 (2011): 409–14, https://doi.org/10.1525/jams.2011.64.2.409.

both apocalyptic and nostalgic narratives, which complicates the ability of the soundtrack to inspire environmentalism through the threat of the destruction of distant planets or of our own. Rehding notes that music struggles to adapt to the apocalyptic style, with its unnerving sense of urgency, yet music is immensely powerful at clarifying the emotional connection between humans and the natural world. By teasing out sentimentality and nostalgia embedded in music and sound; however, scholars call upon the human sentimental relationship with a given environment, activating their desire to maintain and support that space. Rehding references Simon Schama's *Landscape and Memory* to suggest that nature and culture are linked and that landscapes play a crucial role in shaping our cultural identity. Rehding's methods enhance my research as they enliven my understanding of how emotional connections with an environment can influence our behaviors towards that space. Furthermore, he suggests how these responses might be impacted by the sounds we associate with that space. This is significant for my research on outer space, as certain sounds are purposefully threatening and harsh, limiting the possibility of sentimental attachment.

Like Rehding, electronic music composer Joel Chadabe understands that the human emotional experience of the world can be mediated by music's connection to nature, but he goes further to argue that electronic music can tell us more about the human experience of the world than previously realized. Through his comparison of electronic and acoustic music performance, he observes that music performed on traditional instruments (i.e., violins, woodwinds, brass) is an "anthropomorphic projection."[37] Electronic music, on the other hand, has the unique capability of extending human interaction with the world by connecting humans to nature in

[37] Joel Chadabe, "Electronic Music and Life," *Organised Sound* 9, no. 1 (April 2004): 3–6, https://doi.org/10.1017/S1355771804000020.

ways previously inaccessible. Chadabe considers compositions by Ludwig van Beethoven, Claude Debussy, Arnold Schoenberg, Milton Babbitt, David Tudor, and Salvatore Martirano to illustrate the "paradigm shift" away from acoustic toward electronic composition that happened over the course of the twentieth century. Electronic music figures heavily in this dissertation, as it marked a significant shift in compositional style away from the conventional Hollywood orchestra. Composers such as the Barrons, Bernard Herrmann, and Jerry Goldsmith recognized the power of electronic music to signify science fiction, with its uncanny and foreign timbres, so understanding how electronic music relates to environment is crucial for this analysis. While acknowledging the strangeness that accompanies the compositions he analyzes, Chadabe shows that electronic music has a connection to nature and life. His work thus nods toward a major theme of this dissertation, which is the treatment of technology, especially how these films and scores comment on the binary between the mechanical and the biological.

Given the gap that I have outlined from scholarship across several disciplines, I believe it is most necessary to read these films through an ecomusicological lens, considering all the various perspectives offered by these scholars, while offering my own observations on the relationship between sound, music, and outer space environments. My study synthesizes these perspectives and broadens the scope to include the entire landscape, ranging from the original landscape to the artificial or built landscape, as well as the beings that inhabit the landscape and the human space explorers. Science fiction scholars focus primarily on sociological and psychological issues, while film music scholars are more interested in observing the connection between narrative and character and the sounds associated with them. By combining Laudadio's interest in musical narrative and Huebner's observations on technology in film, sans music, my research asks how

technology and music work together in both positive and negative ways, especially as these pertain to the ecologies of outer space environments.

With the recent resurgence in outer space exploration, driven primarily by NASA and private aerospace companies, signaling future colonial efforts on other planets, environmentalism in outer space must be addressed. Environmentalists of today can gain from my historical research, as it shows how humans are likely to colonize planets, abusing natural resources and killing native inhabitants, sometimes resulting planetary destruction. Using the sounds and environments from a set of science fiction films as core data elements, my research demonstrates that science fiction soundtracks delineate environments in outer space that humans wish to protect and those that are hostile and subject to destruction by carefully aligning the former with comfortable, familiar sounds, and the latter with harsh, foreign, and avant-garde sounds.

An ecological reading of the sounds and soundtracks of outer space science fiction films allows me to synthesize all these perspectives and suggest that the sonic definitions given to outer space locales have serious ramifications for our interpretation of and interactions with the environment, both here on Earth and beyond. By synthesizing these diverse publications, my research enlists a variety of film scoring techniques, ranging from conventional, romantic scoring practices to fully electronic film scores, to analyze the effectiveness of the score's ability to transport audiences to outer space. Through this, I can better understand the ecological implications of the new relationship between sound and alien landscapes, as well as the repercussions of technology's weaponization for conquest and control of distant lands.

Chapter Summaries

Chapter One: The Golden Age of Science Fiction

My first chapter analyzes the scores of three films from the early 1950s that exemplify the transition from the conventional Hollywood film score of the first half of the 20th century, which relied on the styles of late romantic composers, such as Richard Wagner, Richard Strauss, and Giacomo Puccini, toward a hybrid compositional style. This new style fused both conventional styles and more avant-garde styles, but also introduced electronic instruments to Hollywood recording studios, most importantly the theremin. The goal of this chapter is to observe how this new hybrid design relates to the outer space environments presented on screen and also examine the spectrum between realism and fantasy exemplified in the films of this period. I focus primarily on the soundtracks from three films: *Rocketship XM, The Day the Earth Stood Still,* and *Destination Moon*. These case studies show how traditional film scoring incorporated new sounds, such as the theremin, which resulted in the theremin's nearly immediate association with extraterrestrials and outer space environments.

Chapter Two: Cyborgs and Cybernetics: Electroacoustic Characterization and Ecology in *Forbidden Planet* (1956)

Chapter Two extends the consideration of science fiction and electronics by analyzing Louis and Bebe Barron's score for *Forbidden Planet*. *Forbidden Planet*'s premiere in 1956 electrified the burgeoning Sci-Fi genre, which dramatized the international exploration efforts of the Space Race, allowing audiences to witness and hear imagined cosmic landscapes. Louis and Bebe Barron's fully electronic film score, the first of its kind, sparked the imagination of generations of sci-fi directors, composers, and enthusiasts to come. This chapter provides an ecomusicological reading of Louis and Bebe Barron's electronic film score. I argue that the cybernetic construction of the sound machines, which replicate biological and psychological processes of humans and animals, blurs the boundaries between biology and technology in

characters such as Robby the Robot, and between the natural and artificial landscapes located on Altair IV. This chapter also considers *Forbidden Planet* as a reworking of Shakespeare's *The Tempest* and discusses what the film suggests about the promise and danger of technology and colonialism and the ecological ramifications these themes may have for the worlds beyond our own.

Chapter Three: Jerry Goldsmith Goes to Space

Chapter Three explores Hollywood's return to acoustic film scoring practices, showing a clear refusal of the electronic composition practices of the previous decade, though avoiding the Classical Hollywood Style and instead embracing an array of avant-garde styles. I demonstrate this shift by highlighting Jerry Goldsmith's score for *The Planet of the Apes* (1968) and its incorporation of contemporary, avant-garde, but purely acoustic, techniques to represent the nuclear wasteland that the explorers come to find is their home planet, Earth. Current scholarship by Philip Hayward and Jon Fitzgerald connects the primitivist and modernist sounds to the characters, social stratification, and narrative of the film, and I consider this discourse as I link these sounds to an apparently unfamiliar, hostile environment for the human explorers.

One decade later, Goldsmith composed another avant-garde film score for *Alien* (1979). However, he expressed mixed feelings about what the soundtrack's goals were in relation to the film. Goldsmith held a different musical vision of outer space from director Ridley Scott, reflected by the original "Main Title," which Goldsmith composed in a late romantic style. Director Ridley Scott rejected Goldsmith's vision altogether and forced him to rewrite large portions of his score to make it sound more terrifying and stranger. This move not only demonstrated the power of the director in sci-fi (also the case with Alex North and Stanley

Kubrick in *2001*), but it also showed that the genres sci-fi tethers itself to can often influence how we hear it. Whereas the psychological aspects of *Planet* encouraged the enigmatic serial score, perhaps Goldsmith took advantage of the gradually developing horror in *Alien* to blend romantic and avant-garde styles. In studying *Alien,* we see how Goldsmith utilized unfamiliar instruments and avant-garde gestures in the orchestra, but also in the studio, using sound devices such as the Echoplex to enhance the spookiness of his revised score. The resulting sound does not attempt to paint space as a romantic setting at all and instead portrays the environment as hostile and dangerous for human life, building upon similar messages of the films from the 1950s.

In contrast with the previous chapters that engage with conventional Hollywood scoring and instances of electronic instruments and sounds, this chapter examines the ecological effects that result from an acoustic, but contemporary film score. Goldsmith has stated in interviews that he believed the linking of electronic music and science fiction was too cliché. An examination of the acoustic avant-garde sound present in both *Planet of the Apes* and *Alien* reveals how Goldsmith approached the sound of outer space ecologies, such as the desolate, ape-dominated planet and the sonic representation of non-humans and aliens, without resorting to the "cliché" electronic sounds of the previous decade.

Chapter Four: Sci-Fi's Return to Convention

Chapter Four offers insight into the works of John Williams: one of the foremost composers in Hollywood history. In this chapter, I explore the retransition from avant-garde scoring practices back to the late Romantic styles that were popular before and during the early 1950s, as well as the continuously developing technologies that made for innovative sound effects

design. I open the chapter by revisiting Jerry Goldsmith and his score for the movie *Star Trek* to draw comparisons between his avant-garde styles and his conventional scoring practices. After an abrasive relationship with Scott in *Alien,* working with Robert Wise and Gene Roddenberry, who shared and encouraged Goldsmith's vision of outer space, was a breath of fresh air for the composer. Though he followed Williams's neoromantic footsteps, he clung to his individual style of embedding unconventional instruments and sounds, demonstrated prominently by the Blaster Beam, an amplified steel beam with strings that run its length.

Williams's score for *Star Wars* completely changed the sonic landscape of sci-fi. His powerful and swashbuckling neoromantic score, an innovation on the Classical Hollywood Style, presented audiences with a familiar musical style to access distant and unfamiliar places, beings, and futuristic technologies. Williams's score also turbocharged the success of sci-fi and was massively influential on the direction of future sci-fi scores. In my analysis of *Star Wars,* I focus on the many leitmotifs that Williams composed for the characters and themes of the original trilogy. I next consider the role of sound effects and how they interface with Williams's score. Through these analyses, I suggest that the treatment of technology differs greatly from the Rebellion to the Empire. I close the chapter by examining how Williams's approached landscape in his score by analyzing how the themes of four characters (Luke, Yoda, the Jawa and the Tusken Raiders) are connected to their surrounding environments. Whereas the heroic main characters like Luke travel across the galaxy, carrying their themes with them, other characters like the Jawa, who are indigenous to Tatooine, have a theme that more closely integrates with Williams's desert music

This chapter links my analysis of older films to more contemporary science fiction films, as Americans witnessed the thawing of the Cold War, and the emergence of more modern

critiques of environmental degradation, colonialism, and the rapid development of technology. The soundtracks for these films are much more challenging to analyze ecologically, however, since their soundtracks focus more on representations of characters rather than place. By reframing our perspective on these film scores to include more ecomusicological readings, relating the music and sounds to the environments in each film, I demonstrate that both film scores go beyond simple character sonification and exhibit sonic relationships with the other-worldly environments in which they are set.

Between these three decades there are hundreds of films I could have analyzed for this dissertation, but I chose these not only because they have unique ecocritical messages, but also because the scores and the composers are some of the most influential of this time. None of the composers I mention in the following pages are strictly sci-fi composers, and in fact many of them were successful across several genres, but, like Zimmer, sci-fi offered them an opportunity to escape the expected film score tropes. In this dissertation, I weave a tapestry of case studies that track the development of the sound of sci-fi, covering instrumentation, compositional techniques, and the role of timbre, electronics, and sound effects, and show how this significant group of composers connected with the ecological issues portrayed through the narratives and constructed a new soundworld for the Final Frontier.

Chapter One: The Golden Age of Science Fiction

On October 30, 1938, at 8:00 pm, Orson Welles and The Mercury Theatre took to the airwaves to present a radio adaptation of H. G. Wells's *The War of the Worlds*.[38] Transmitting from the main studio at the Columbia Broadcasting System in New York City, Welles's radio drama immersed audiences in an audio experience that sparked one of the most significant social reactions to science fiction ever recorded. The one-hour show opened with the usual *Mercury Theatre on Air* theme music, followed by the introduction of the evening's show as an adaptation of *The War of the Worlds.* Afterward, Welles recited a prologue, a slightly modified version of Wells's prologue from the original publication, and transported listeners to Grover's Mill, New Jersey in the year 1939. The program segued into an imitation of a nightly radio broadcast, with convincing news stories and weather reports, along with "live" music performed by the fictitious Ramon Raquello and His Orchestra.[39] As if it were happening in real time, the music was interrupted by an emergency news flash about a series of explosions on Mars, followed by an interview between a reporter, Carl Phillips, and a Princeton Astronomy professor, Richard Pierson, who reaffirmed his belief that there is no life on Mars. Later in the program, another news flash covered a meteorite that just crash-landed. Scientists, reporters, police, and locals quickly surrounded the landing site and gazed cautiously at the strange object embedded in the earth. The scene suddenly turned violent as a Martian emerged from the meteorite and blasted the surrounding area with a ray gun, injuring many of the people in the crowd and scorching

[38] H. G. Wells, *The War of the Worlds* (London: William Heinemann, 1898). For a full recording, see Orson Welles, "Mercury Theatre on the Air: The War of the Worlds," Lilly Library: Orson Welles on the Air, 1938-1946, accessed April 25, 2022, https://orsonwelles.indiana.edu/items/show/1972.

[39] Bernard Herrmann's most significant contribution to this production was conducting the orchestra that provided the sound for Ramon Raquello's live studio orchestra, but Herrmann did not compose any original music for the program, outside of the themes for *The Mercury Theatre*.

everything in between. This also interrupted the on-site broadcast transmission, which forced the announcers to return to the regularly scheduled program for the evening.

Shortly thereafter, a gigantic tripod machine rose from the ground and attacked US military forces, completely overwhelming them. Several more tripods emerged from the earth and continued their destructive march across highways and suburbs, leaving piles of burning debris behind them. The radio broadcasters hectically vacillated between the evening programs and the frequent news interruptions from the field, as the Martian tripods waded across the Hudson River into New York City, where a cloud of noxious "smoke" descended on the area, suffocating everyone who inhaled it. Reporters suggested that multiple alien pods might have crashed across the entire US as the number of reported tripods continued to grow and the Martian force seemed almost insurmountable. Just before intermission, a person called over a radio, "2X2L, calling CQ, New York. Isn't anyone on the air? Isn't there anyone on the air? Isn't there… anyone?"

While Welles's story was broadcast over the airwaves, trouble brewed at CBS's studio in New York City.[40] The production continued after the intermission but soon faced a surprising confrontation with law enforcement officials. After the first half hour, one of the producers was told to interrupt the show and stop the broadcast, which by that point involved the tripod Martian machines decimating New York City. Many police stations later reported a substantial increase in calls during the hour-long radio program from panicked listeners who truly believed that the world was coming to an end. Jack Paar, working for a CBS affiliate in Cleveland, OH noted that he dealt with many distraught callers, some of whom accused Paar of aiding in a

[40] For more on the entire incident, see Frank Brady, *Citizen Welles: A Biography of Orson Welles* (New York: Scribner, 1989).

cover-up.[41] Back at the main studio in New York, several CBS executives and supervisors were packing the radio station's control room to deal with a large group of police gathered outside the studio and calls from across the country mentioning that there were angry mobs forming in their towns because of the radio broadcast. Despite the careful planning and creative production, what historians and sociologists remember most about Welles's *The War of the Worlds* was the paranoia it generated among the American public.

Though sociologists and historiographers have debated the true scope of the confusion from that evening in October 1938 (Cantril, 1940; Pooley and Socolow, 2013; Bartholomew, 2001), Welles's *War of the Worlds* tells us several things about society's relationship with science fiction, particularly through its questioning of what is real and what is imaginary. This of course is one of the principal goals of science fiction: a genre that is partly based in science (i.e., "realistic" to a certain degree) and partly based in fiction (i.e., "imaginary"). Welles intentionally designed the broadcast to sound realistic, presenting Wells's story as if it were happening in real-time. The *New York Times* headlined their review with the "gas raid from Mars" at the farm in Grover's Mill and noted the overreaction from audiences across the country, which was significant because it demonstrated that Welles could captivate audiences in ways that, in the late 1930s, few others could.[42] As film technology and production capabilities grew more sophisticated, sci-fi became a viable option for the screen, bringing visual and sonic vibrance to stories that once only lived on paper or over the air. Film, compared to radio and literature, does not rely on audience members' imaginations to wonder what outer space might look and sound

[41] Gary L. Bloomfield, Stacy L. Shain, and Arlen C. Davidson, *Duty, Honor, Applause: America's Entertainers in World War II* (Guilford, Conn.: Lyon's Press, 2004). 37.
[42] Headline from *The New York Times*, October 31, 1938: "Radio Listeners in Panic, Taking War Drama as Fact."

like. Instead, directors, producers, set designers, film composers, and all the other production staff presented their own impressions of outer space, spacecraft, and extraterrestrials.

Sci-fi films overall lay on a spectrum of realism and fantasy, each one striking its own balance and blend of different elements, and film composers played a significant role in composing scores that helped establish each film's location on this spectrum. By selecting popular dance band tunes and making his orchestra sound like a live band, Bernard Herrmann, whose film work I will discuss later in this chapter, perfectly supported Welles's goal of creating a realistic radio presentation and made the fictitious news reports about the Martian heat ray and numerous mechanical tripods more believable.[43] Music can work just as well for the other side of the spectrum, and composers often achieved a sense of fantasy through a combination of electronic instruments or atypical timbres. My analysis in this chapter explores how sci-fi film composers moved fluidly across the fantasy-reality spectrum, working in tandem with the film's emotions and dramatic content, while also characterizing the new extraterrestrial setting and the beings that came along with it.

In this chapter, I examine the film music contributions by Ferde Grofé and Bernard Herrmann for the films *Rocketship X-M* (1950) and *The Day the Earth Stood Still* (1951), respectively, to understand their music's connection to the landscapes of these sci-fi films and how their music balances realism and imagination. I argue that Grofé and Herrmann relied heavily on the theremin to connect their music with the outer space landscape, and that the

[43] Steven C. Smith, *A Heart at Fire's Center the Life and Music of Bernard Herrmann* (Berkeley: University of California Press, 1991), http://ark.cdlib.org/ark:/13030/ft509nb37s/. 66. Actor Paul Stewart worked as a producer for the program and suggested that they play "Stardust" and "La Cumparsita," which were challenging for the orchestra because they initially struggled to sound like a dance band. CBS had a dance band, but it was booked on the night of the show.

theremin's distinct "alien" sound and performance practice enhanced its eeriness. Both Herrmann and Grofé maintained strong ties to the traditional orchestra in their scores to create a sonic juxtaposition between the ecologies of the Earth and those of outer space, but also to express the emotions of the characters. As I will show later, many of the early cues in these soundtracks express boundless excitement, but gradually transition to apprehension as the human protagonists come face to face with the realities of outer space. Many film scholars and historians note that sci-fi films from this period are not just stories about outer space but share messages and social critiques often tied to current events. Connecting both the conventional and unconventional musical representations of landscape and emotion to the image track and dialogue, I analyze how both films used stories of aliens and outer space as vehicles to share an anti-conflict message.[44] The unfamiliar, eerie timbres from the electronic instruments in these scores aroused feelings of fear and terror with respect to futuristic technology and extraterrestrials, often standing in as symbolic representatives of the Soviet Union.

Herrmann's and Grofé's scores paint a complicated experience of outer space, where, on one hand, the emotional content appears to praise technological progress and sense of heroic adventure that coincides with interstellar expeditions, while on the other hand, the arrival into outer space, and the encounter with extra-terrestrials, warns that outer space may be more inhospitable to astronaut visitors than initially perceived. This tension presents itself well in the

[44] The anti-conflict message is much more than a simple critique of the Cold War. The "imagination of disaster," an idea coined by Susan Sontag, was a common concept among sci-fi films of the 1950s, born out of a fear of mutually assured destruction following the invention of nuclear arms. Some movies presented the nuclear disaster as creating mutant bugs or creatures that wreaked havoc on communities and others showed that nuclear bombs, though highly destructive against humans, were entirely useless against Martian invaders, as in the movie adaptation of *The War of the Worlds* from 1953. See Susan Sontag, "The Imagination of Disaster," in *Liquid Metal: The Science Fiction Film Reader*, ed. Sean Redmond (London: Wallflower, 2004), 40–47. For more on nuclear weapons, see David Eldridge, "'There Is Hope for the Future': Retrospective Visions of the Bomb in 1950s Hollywood," *Historical Journal of Film, Radio and Television* 26, no. 3 (August 1, 2006): 295–309, https://doi.org/10.1080/01439680600799231.

main title music for many sci-fi films and tv shows, which often contained a brassy melody above a major-mode, tonal harmonic setting. To my ears, this music is both a symbol of "home," in other words, music that is familiar, and a musical reflection of adventure and an optimistic departure from home into outer space. At a time when space travel was still just a fantasy, many believed that space exploration would yield unlimited possibilities for travel, settlement, and resources.[45]

The music in these movies often mirrored the movement of the characters from terrestrial locales to outer space (or their encounters with extra-terrestrials), shifting, sometimes suddenly, from the familiar "main title" cues to the strange, unfamiliar ones. The composer typically abandoned major tonality in favor of minor tonality, or wholesale atonality, and rearranged the orchestration to have the electronic instruments and other unusual additions at the forefront of the orchestral texture to symbolize harsh terrain, uninhabitable spaces, and threatening extra-terrestrials. Similarly, this musical shift captured the emotional changes within the characters over the course of the film. In many early sci-fi films, the arrival in outer space turned the expectations held by the astronauts entirely upside down. Excitement and eagerness are replaced with apprehension and fear as the astronauts realize the dangers of outer space. In this early period of sci-fi on screen, composers felt comfortable to blaze their own trails in sci-fi scoring, experimenting with all facets of the orchestra and recording studio, making sci-fi's cinematic Golden Age an attractive era for musical study.

This Golden Age of science fiction film began conclusively in 1950 with the premiere of the movie *Destination Moon*, directed by Irving Pichel and written by Alford Van Ronkel and

[45] To this date, that hasn't really happened. Sci-fi, even today, still mythologizes the true usefulness of outer space, if we consider films like *Wall-E, Interstellar,* and *The Martian*.

Robert A. Heinlein. Heinlein, whom some refer to as the "dean" of science fiction writers, most famously pioneered scientific accuracy in his literature (forging a genre later known as "hard science fiction"). *Destination Moon* focused on some of the scientific, engineering, and economic advances required to realistically conduct manned space travel and land on the moon. The story begins with a group of government rocket scientists, led by Dr. Charles Cargraves (Warner Anderson), who struggle to create a successful rocket and then have their funding cut, forcing them to turn to the private sector and the aircraft expertise of Jim Barnes (John Archer). Bolstered by new seed funding from this private sector partnership, the team develops an atomic-powered rocket, named "Luna," that could successfully enter orbit and conduct a manned mission to the moon. After a successful launch, the crew encounters several technical difficulties that require them to traverse outside the shuttle, which nearly results in Dr. Cargraves becoming untethered and drifting into space, but he is saved by Barnes, who improvises a propulsion device with an oxygen canister.

As they descend toward the moon's surface, the crew ends up using much more fuel than they originally anticipated due to the complex nature of the moon landing process. They land safely on the moon and venture out from the spaceship to explore the surrounding area and look back toward the Earth, seeing its blue sphere contrast sharply against the deep black of space. As the crew prepares to return to Earth, they realize that they will not have enough fuel to make it back, but they devise a solution to lighten their load. They start pulling extra gear, rations, all the non-essential goods, but mission control tells them they will have to remove even more weight. After fighting with each other about who should stay behind to make weight, they jerry-rig a method to keep the crew together and leave the final pieces of gear and some of the ship's

electronic components behind during launch. The entire crew boards safely and they have enough fuel to make it back to Earth.

Destination Moon was well-received by contemporary film and sci-fi critics. The *New York Times* film critic Bosley Crowther wrote that director George Pal paints outer space adventures as "a most intriguing and picturesque event."[46] Sci-fi writer Arthur C. Clarke said that *Destination Moon* was an "exciting and often very beautiful film," and that, "after years of comic strip treatment of interplanetary travel, Hollywood has at last made a serious and scientifically accurate film on the subject, with full cooperation of astronomers and rocket experts."[47] Indeed, Pal and his production staff invested heavily in discussions with scientists and experts to make sure they presented this moon landing expedition as accurately as possible, and the film's release was delayed due to significant work on special effects.[48] The film clearly hinted at a larger movement taking place in society, science, and culture, as suggested by its ending card, which read, "This the end… of the beginning!"

Pal invested heavily in special effects and post-production to make the film as realistic as possible from a visual standpoint, and Pal's passion for pervasive realism and scientific accuracy also affected *Destination Moon*'s underscoring, composed by Leith Stevens. Prior to *Destination Moon,* he worked extensively in radio, conducting his own radio orchestra, and arranging and composing music for many radio shows and series. Beginning in the 1940s, Stevens enjoyed a

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[46] Bosley Crowther, "THE SCREEN: TWO NEW FEATURES ARRIVE; 'Destination Moon,' George Pal Version of Rocket Voyage, New Film at Mayfair '50 Years Before Your Eyes,' Warner's Factual Review, Shown at Embassy At Embassy Theatres," *The New York Times*, June 28, 1950, sec. Archives, https://www.nytimes.com/1950/06/28/archives/the-screen-two-new-features-arrive-destination-moon-george-pal.html.

[47] Arthur C. Clarke, "Destination Moon," *Journal of the British Astronomical Association* 60, no. 8 (October 1950). 107.

[48] The first moon landing would not come until nearly two decades later, which made this process difficult in terms of capturing a realistic experience.

lengthy career as a film composer, contributing to over forty films and a variety of television shows. In the liner notes for the 1960 soundtrack LP, music reviewer Cy Schneider wrote that Stevens researched outer space extensively prior to composing the score. Stevens consulted scientists and experts for three months and studied artistic drawings of outer space to situate himself properly before composing the score.[49] Stevens's musical "realism" for outer space could never truly replicate the experience of sound in space, in part because sound requires vibrating molecules to travel, and in the vacuum of outer space, these particles are very few and far between.[50] So what could Stevens do with his score to present a "realistic" vision of outer space?

Stevens's score falls in line with many Hollywood film scores of the period, relying on the tried-and-true romantic stylings that closely resembled the early days of Hollywood film music. This conventional approach, as James Wierzbicki argues, was an artistic choice, rather than a requirement as Stevens had access to electronic instruments, several of which, such as the ondes Martenot, the theremin, and various types of electronic organs, were widely available by 1950 and made their way into other film scores during this period.[51] Wierzbicki questioned whether conventional orchestration methods could adequately connect with sci-fi, writing, "all of this music drew its sonic coloration from the same orchestral palette that served the needs of Hollywood composers as they lent musical support to the activities of 'normal' characters."[52]

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[49] *Destination Moon*, 33 1/3 LP (Omega Disk, 1960). The outer space artist Chesley Bonestell is worth mentioning here as well, and his art was highly influential not just on sci-fi film, but also on the development of actual spaceships. For more on Bonestell see Frederick C. Durant, III and Ron Miller, *Worlds Beyond: The Art of Chesley Bonestell* (Norfolk/Virginia Beach: The Donning Company, 1983).

[50] "Can You Hear Sounds in Space? (Beginner) - Curious About Astronomy? Ask an Astronomer," accessed April 13, 2021, http://curious.astro.cornell.edu/about-us/150-people-in-astronomy/space-exploration-and-astronauts/general-questions/918-can-you-hear-sounds-in-space-beginner. Sound *can* exist in space, but the density of particles is so low, and the frequencies are so high that most sounds would be inaudible to humans.

[51] Wierzbicki, "Weird Vibrations: How the Theremin Gave Musical Voice to Hollywood's Extraterrestrial 'Others.'" 126.

[52] Wierzbicki. 126.

Perhaps the normal characters that Wierzbicki describes aptly suit the realistic goals of *Destination Moon,* which would support Stevens's conventional scoring, normalizing a realistic moon-landing expedition.

Though space programs would not begin in earnest until later in the decade, the prospect of traveling beyond Earth's atmosphere was far from fantasy. Furthermore, because this film has no extraterrestrial characters, which would have blurred the boundary between realism and fantasy, Stevens's score is able to reflect a plausible human experience, in which electronic sounds might have been distracting. Stevens did momentarily stray from the romantic style, however, and it is telling that he composed the "strangest" music for the moon landing scenes, where a more unfamiliar soundscape pairs better with the lunar setting.

Thinking back to the UFO sightings I reference in the introduction to this dissertation, I believe the intermittent popularity of conspiracy theories over the decades from 1940 to 1990 suggests the American public's wariness of extraterrestrial visitors, and their conflicted feelings about rapidly advancing technology and the future of space exploration. Wierzbicki suggests that there may be a link between the increased number of UFO sightings and the heightened social paranoia because of the growing Cold War tensions between the United States and the Soviet Union, which in turn became a popular subject for sci-fi films from the early 1950s. In *TDTEST*, for example, we find textual references to the "Reds" and key characters (Klaatu and Gort), who may symbolize Soviet ambassadors/invaders. Although such allusions are less explicit in *Rocketship X-M*, keeping this Cold War context in mind will help us understand what was at stake in Grofe's engagement with outer space ecologies.

Rocketship X-M and Ferde Grofé as Landscape Composer

Despite *Destination Moon*'s designation as the kickstarter of Hollywood's Golden Age of sci-fi, *Rocketship X-M* (shortened, *RXM*) premiered just twenty-five days prior to George Pal's film. However, *Destination Moon* largely overshadowed *RXM*'s premiere due to the broad public anticipation of the film, the influence of Technicolor (*Rocketship X-M* is black-and-white), and the significant efforts by Pal and the production staff to make the film as scientifically realistic as possible. *Rocketship X-M*, directed by Robert L. Lippert, had different aspirations. *RXM*'s budget was only $94,000, which resulted in toned-down special effects, which many film critics saw as the main selling point for *Destination Moon* (and a certain contributor to its $592,000 budget). As professor and film critic John C. Tibbetts writes, "*Moon* won an Oscar for its special effects and studio-designed lunar landscapes inspired by famous painter Chesley Bonestell," while "*RXM* relied on a chalkboard lecture and desert locations for its Martian terrain."[53] To illustrate the difference, Tibbetts calls upon a sci-fi binary created by the Canadian sci-fi writer Judith Merrill: "whirling wheels and soft footfalls of thought." To Tibbetts, *Destination Moon* offered the whirling wheels, while *RXM* provided thought-provoking messages about technology, militarization, space exploration, and the future of humanity.[54] As we consider the musical contributions from composers Leith Stevens and Ferde Grofé, the rift between these films broadens to a canyon. While Stevens's approach to his score is noteworthy for its scientific perspective, Grofé appears to draw inspiration from his impression of outer space and his emotional associations with spaceships, Mars, and extraterrestrial encounters.

[53] John C. Tibbetts, "Rocketship X-M: The Sounds of a Martian Breeze," *Sounds of the Future: Essays on Music in Science Fiction Film*, 2010, 194–209. 195.
[54] Tibbetts. 195.

Kurt Newman's screenplay for *RXM* described what was supposed to be a standard moon expedition, but a major mechanical failure causes the engines of the spaceship RX-M, designed by Dr. Karl Eckstrom (John Emery) to shut off unexpectedly. The crew, comprised of Dr. Eckstrom, Colonel Floyd Graham (Lloyd Bridges), Harry Chamberlain (Hugh O'Brian), Dr. Lisa Van Horn (Osa Massen), and Major William Corrigan (Noah Beery, Jr.), soon fixes the problem, but as the engines reignite, the ship zooms out of control and flies right past the moon at a speed so quick it knocks the crew unconscious. After some time, the crew regain consciousness, but now find themselves over 50 million miles beyond the moon and much closer to Mars. The astronauts agree to land on Mars and begin exploring. While exploring the area around their landing site, the crew discovers the ruins of a now extinct, but technologically advanced civilization. The astronauts check their Geiger counters and theorize that the abnormally high readings suggest that a nuclear war eradicated the Martian population, leaving behind the ruins and artifacts they find. While resting, Dr. Eckstrom sees a small group of primitive human-like beings approach them with weapons like rocks and crudely made spears. They survive the encounter with the Martians and quickly return to the spaceship and depart for Earth. The return is equally as treacherous as their departure; the spaceship has run out of fuel and thus crashes violently into Earth, leaving no survivors.

By 1950, the year of *RXM*'s premiere, Ferde Grofé (born Ferdinand Rudolph von Grofé, 1892 – 1972) had acquired significant acclaim in the United States as a quintessential American composer and a leader in landscape composition, having composed several landmark programmatic suites that highlighted some of the most remarkable geographical sites across the country. Born to two German immigrants in New York, Grofé had a very musical upbringing. His father, Emil, sang baritone in the opera and his mother, Elsa Johanna Bierlich, was a

professional cellist and Ferde's primary music instructor, teaching him to play both violin and piano. The Grofé extended family was quite musical, too. Elsa's father played cello with the Metropolitan Opera and her brother was the first violinist and concertmaster of the Los Angeles Symphony Orchestra. Shortly after Ferde's birth, the family relocated to Los Angeles. Following Emil's passing in 1899 and needing to sustain the family financially, Elsa and Ferde departed for Leipzig where she studied at the conservatory for several years and young Ferde took lessons with Otto Leonhardt for two years.[55] Elsa and Ferde returned to Los Angeles three years later and in 1906 Ferde left home, working in numerous wage jobs and as a freelance pianist and violinist before joining the Los Angeles Symphony as a viola player from 1909 to 1919.[56]

Grofé left for the East Coast in 1920 to play piano with Paul Whiteman, and soon after toured extensively with the Whiteman band. Following their European tour in 1923, Whiteman appointed Grofé as the band's chief arranger and composer, a position he held until 1932.[57] Most famously, Grofé arranged George Gershwin's *Rhapsody in Blue* for Whiteman's band in 1924, which brought him incredible renown in the jazz world and earned him the nickname "Prime Minister of Jazz," given by the *New York Times* in 1932.[58] During this period Grofé composed more original pieces for Whiteman's group and a few orchestral pieces. His first major orchestral

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[55] David Mason Greene and Constance Green, *Greene's Biographical Encyclopedia of Composers* (Reproducing Piano Roll Fnd., 1985). 1024. See also Jim Farrington, *Grofé, Ferde [Ferdinand]* (Oxford University Press, 2013), https://doi.org/10.1093/gmo/9781561592630.article.A2249674.

[56] "Ferde Grofé | American Composer," Encyclopedia Britannica, accessed March 30, 2021, https://www.britannica.com/biography/Ferde-Grofe. To read more about the history of the Los Angeles Symphony, which came into existence in 1898 following the failure of the first Los Angeles Philharmonic, see Catherine Parsons Smith, *Making Music in Los Angeles: Transforming the Popular* (Berkeley: University of California Press, 2007).

[57] "The Prime Minister of Jazz," accessed March 29, 2021, http://timesmachine.nytimes.com/timesmachine/1932/10/16/100809261.html.

[58] "The Prime Minister of Jazz." Ferde Grofé also arranged the popular orchestral version of *Rhapsody in Blue* which is regularly performed today. The style of jazz in Grofé's arrangements became the style of Whiteman's band, claiming the name "symphonic jazz." See also Ryan Raul Bañagale, *Arranging Gershwin: Rhapsody in Blue and the Creation of an American Icon* (Oxford: Oxford University Press, 2014).

suite, *The Mississippi Suite,* premiered in 1925, launching his career as an orchestral tone poem composer and spawning a series of suites focused on landmarks across the United States. After a difficult break with Paul Whiteman shortly after the premiere of the *Grand Canyon Suite*, Grofé set off on his own, composing and guest conducting for bands across the United States. Radio City Music Hall named Grofé chief musical arranger and "composer laureate" in 1932, and he taught orchestration at Juilliard from 1939 to 1942.[59]

Few would label Grofé a true film composer, compared to the likes of Herrmann and other contemporaries, but he started composing for films in 1928 with the silent movie *Early to Bed.* Then, in 1930 he worked on two films, arranging and composing for the film *King of Jazz* (hence his similar nickname; dir. John Murray Anderson) and *Redemption* (dir. Fred Niblo). His next film did not come until 1944 and in the meantime Grofé served as a guest conductor with many different groups and composed for a variety of radio programs and television series, most notably several short productions using movements from his programmatic suites. 1950 would be Grofé's best and final year in Hollywood, composing two scores, *The Return of Jesse James* (dir. Arthur Hilton) and *Rocketship X-M.*

Grofé, Tone Painting, and the Grand Canyon

Grofé's most popular landscape suite is his *Grand Canyon Suite,* which he began composing in 1929 and premiered in 1931 in Chicago under the direction of Paul Whiteman. Inspired by both the beauty of the American natural landmark and the sublime power of nature, the suite portrays a musical journey through the canyon, representing the desert landscapes, a cowboy, and dramatic weather events of the Grand Canyon environs through five movements,

[59] Jim Farrington, *Grofé, Ferde [Ferdinand]* (Oxford University Press, 2013), https://doi.org/10.1093/gmo/9781561592630.article.A2249674.

"Sunrise," "Painted Desert," "On the Trail," "Sunset," and "Cloudburst." Like his other landscape suites, Grofé's inspiration for the *Grand Canyon Suite* came from his own experiences within the environment. In his 1938 essay, "Story of the *Grand Canyon Suite,"* Grofé recalled each movement and the various locations, sounds, and events that are reflected by the music, but also described his intimate history with the American Southwest and the years when he lived in Arizona and toured the surrounding areas. Grofé stated that his 1926 visit to Arizona sparked his interest in composing for this landscape. "On that occasion came to me the irresistible impulse to put into music what I felt about the state and its wonders of Nature. To me they were epitomized, before all else, in the awe-inspiring magnificence and towering mystery of the Grand Canyon, which had always stimulated my imagination to form tonal impressions. I saw color, but I 'heard' it too…"[60]

Perhaps the most intriguing characteristic of the *Grand Canyon Suite* is the illustrative power of Grofé's tone painting technique. Tone painting generally refers to "the depiction or imitation of optical and auditory events, impressions, sensations etc., particularly those found in nature or in everyday life."[61] For Grofé, tone painting offered the ability to convey his own realistic musical vision of the Grand Canyon, allowing audiences to hear the rushing of the Colorado River, the thunder and wind of a raucous thunderstorm, and the people who traversed this landscape. Grofé fondly remembered in the 1938 essay one New York critic, reviewing the 1931 premiere, who celebrated his "coloring, melody, imagination, and instrumentation of

[60] Ferde Grofé, "Story of the Grand Canyon Suite" (Essay, 1938). Excerpt reproduced in Appendix B of 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, no. 2 (Summer 2004): 325–67.
[61] "Tonmalerei," Grove Music Online, January 20, 2001, https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000028134.

evocative atmosphere." The quotation continued, "Grofé actually gives you the spirit of the Grand Canyon, its gorgeous beauty, its vastness, its part in the Indian history of the Southwest."[62] Understanding the illustrative power of Grofé's tone painting will help us identify similar techniques in his later work for *RXM*, a compelling film score that engaged audiences with the Martian environment.

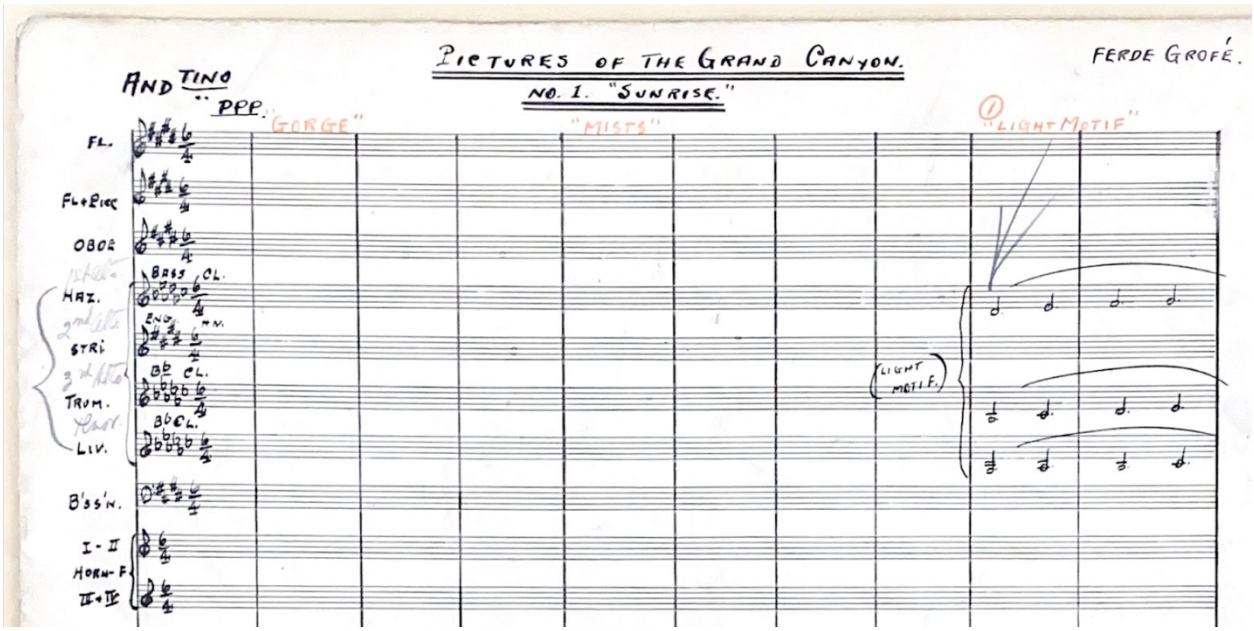
In several of his personal writings, Grofé revealed his appreciation for the natural world, often describing features of the landscape that he was attracted to. Again from his 1938 essay, "I treasure my recollections of the place I am writing about; recollections sentimental pictorial, romantic; recollections of grandiose Nature, of vast areas of eloquent solitudes, towering heights, silent deserts, rushing rivers, wild animal life; of health-giving ozone, magic dawns and resplendent sunsets, silvery moonshine, iridescent colorings of skies and rocks."[63] Even the original title of the piece, *Five Pictures of the Grand Canyon,* and the illustrative movement titles, such as "Painted Desert" and "Sunset," demonstrate Grofé's descriptive prowess.

Speaking about the inspiration for the *Grand Canyon Suite* Grofé said, "I first saw the dawn because we got there the night before and camped. 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. All of a sudden, bingo! There it was, the sun. I could hardly describe it in words because words would be inadequate."[64] The "Sunrise" movement that opens Grofé's suite, a common subject for landscape compositions, epitomizes his tone painting technique because Grofé clearly labeled specific motifs and the landscape features they are supposed to represent,

[62] Grofé, "Story of the Grand Canyon Suite."
[63] Grofé. *Grand Canyon Suite* essay.
[64] Theresa Schiavone, "'Grand Canyon Suite,'" NPR, October 29, 2000, https://www.npr.org/2000/10/29/1113160/grand-canyon-suite.

much like he might have seen in a silent film cue sheet, which he would have been familiar with from his 1928 film composing debut. Above the timpani roll in measure one, Grofé wrote "Gorge," symbolizing the distant rushing of water through the middle of the canyon, followed by the "mists" represented by sustained violin harmonics in measure four, where he instructed the violinists to "change bows irregularly" to create a more natural, organic sound effect. In measure nine, Grofé composed the "light motif," an ostinato-like four-bar phrase of slowly ascending chords played by the woodwinds. As the light slowly creeps over the horizon, the trumpets play a cluster chord of C, D, E, and F with buzzer or kazoo mutes in measure 13, providing the soft, scratchy, and rhythmic din of chirping crickets. The "bird life" motif, played by solo piccolo enters shortly after in measure 17 and leads into the horns playing the triumphant "call of the animals" in measure 21, stacking together with all the other motifs and constructing the beautiful awakening of the canyon landscape and the resident wildlife. Once the landscape is set, Grofé introduces the "Sunrise theme" in measure 37, played by the English horn, which eventually pervades the rest of the movement, as it passes throughout the orchestra and continually crescendos into a gigantic climax at the end of the movement, symbolizing the glory and splendor of the sun as it rises over the curvature of the Earth and into the sky above.

Example 1: Ferde Grofé's motif labels in "Sunrise" from the Grand Canyon Suite. Library of Congress, Ferde Grofé collection, Box 101.



In the final movement, "Cloudburst," "the most pictorial of the suite" according to the program, Grofé musically reenacts a series of dramatic weather events, including a thunderstorm and majestic glowing moon after its passing.[65] A notable feature of this movement is Grofé's use of sound effects from the orchestra, such as the wind machine and a thunder sheet to heighten the intensity and realistic sound of the storm. The movement opens with gentle strings playing a reprise of several melodies from the prior movements. The melodies soften, giving way to a somber cello solo—the calm before the storm—followed by a drawn out crescendo across the orchestra, intensifying gradually as the storm approaches. Grofé sends the orchestra into a frenzied state to symbolize the storm, composing violent, percussive undulations and frequent grating dissonances in the woodwinds, brass, and glissando effects in the strings. The wind machine whirs constantly, and the thunder sheet clangs violently as the storm passes through the

[65] *Grand Canyon Suite,* program notes (New York: Robbins Music Corp., 1943).

canyon.[66] The torrential storm eventually passes and gives way to the last two, more joyful musical sections, titled, "Moon Comes from Behind the Clouds," and "Nature Rejoices in All Its Grandeur." To close the suite, Grofé brings back the cowboy melody from "On the Trail," this time with the full, roaring orchestral accompaniment symbolizing the rejoicing of nature described in Grofé's title.

Through his descriptive titles and elaborate tone painting, Grofé's *Grand Canyon Suite* embodied a strong sense of realism in its representation of the Grand Canyon landscape. He captured direct representations, such as the trotting of the *burro* in "On the Trail," or the noisy thunderstorm in "Cloudburst," and a few impressionistic moments, especially evident in "The Painted Desert," and the rushing of the gorge and its mists in "Sunrise."[67] Grofé's ability to churn out pictorial music, as demonstrated in his landscape suites, made him an attractive composer for Hollywood studios as his music already had a quasi-visual element.[68] Ross Care stated that, "Grofé's more well-known concert music," such as the suite I described here, "could easily be taken for film music in search of a film."[69] Combining that skill with his experiences as an arranger and orchestrator for the Whiteman band, his movement into Hollywood, albeit brief, was almost a foregone conclusion.

For musicologist Brooks Toliver, Grofé's *Grand Canyon Suite* contributed to an existing body of artwork, both musical and visual, that helped interpret ideas of wilderness and the

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[66] Denise Von Glahn, *The Sounds of Place: Music and the American Cultural Landscape* (Boston: Northeastern University Press, 2003). 206. Von Glahn quotes Grofé comparing his own musical storm to previous instances such as those by Beethoven, Strauss, and Rossini: "They employed chromatics. I don't; I use augmented chords; different accents… no arpeggios going up and down. I employed the fewest notes possible to create a storm."
[67] Von Glahn. Von Glahn states that Grofé drew from the quartal and quintal harmonies of Debussy, as well as the planed chords, ostinato, and a "fragmentary melodic gesture," which contribute an impressionist sound.
[68] Aaron Copland is another concert composer turned film composer, and whose musical identity has is distinctly American.
[69] Ross Care, "Into Orbit: The Scores of Ferde Grofé," *Take One*, January 1979. 40–41.

concepts of preservation and conservation.[70] Though Toliver questions Grofé's attitudes toward the environment and wilderness, he suggests that Grofé's tone painting helped paint an impressionistic soundworld of the Grand Canyon that realistically depicted events, people, and objects within this landscape. But how does the Grand Canyon relate to his work for *Rocketship X-M* two decades later? Whereas Grofé enjoyed several trips through the American Southwest, using these memorable experiences to craft his musical analogs for geographical landmarks, Grofé, like everyone else at the time, had never been to outer space. It also seems like he didn't consult any scientists about outer space (unlike Stevens in *Destination Moon*), so his landscape underscoring for Mars must have been driven purely by his imagination and the aura of fantasy surrounding outer space travel at the time. Based on several personal accounts by Grofé about his interactions with the Grand Canyon landscape, Toliver concludes that Grofé appreciated the "rugged environment challenging and improving those who encounter it," a concept rooted in pioneer ideology.[71] Given his familiarity with the narrative of pioneering westward expansion through manifest destiny, perhaps Grofé was also considering the concept of the Final Frontier and how the rugged environment on Mars, and especially the Martians themselves, might challenge the astronauts who visit.

From the Grand Canyon to Mars

Prior to *RXM,* as I have already stated, Grofé had limited experience with Hollywood. He composed scores for a few B-movies, including *Diamond Jim* (1935) and the documentary

[70] Toliver, "Eco-ing in the Canyon."
[71] Toliver. 326. Toliver considers Grofé's complicated ecocritical relationship with "wilderness," and that "he brought to his suite a way of appreciating nature that was theoretically incompatible with leaving it alone." Toliver also mentions that Grofé was at one point part owner of a resource extraction company in Arizona, showing that he wasn't always treating the desert as a true wilderness untouched by humans.

Minstrel Man (1944), which secured Grofé an Academy Award nomination for "Scoring of a Musical Picture," but he never made a name for himself as a major Hollywood composer.[72] Some film historians believed that Grofé was merely an adequate film composer, but historian Ross Care suggested, "If Grofé remains a minor figure in film music, it is merely because of the types of film which came his way."[73] Although he had limited impact on Hollywood around 1950, many critics and historians celebrate Grofé's work for *RXM*, praising him for creating a distinct soundworld for Mars and for introducing the theremin to sci-fi film scores, which would turn out to have a long-lasting impact on the genre.

Grofé's instrumentation choices for *RXM* demonstrate a keen interest in bringing electronic instruments into the conventional Hollywood orchestra. Grofé used the theremin and the Novachord together in this score to bring a wide array of electronic timbres to define the Martian landscape. However, the score suggests that Grofé was less familiar with the theremin in comparison to the Novachord, which he had encountered long before his time in Hollywood. Grofé first worked with the Novachord in 1938 when the Hammond Organ company asked Grofé to perform a series of arrangements for Novachord ensemble for the Ford Motor Company at the 1939 World's Fair in New York.[74] The Novachord was Hammond's newest commercial synthesizer, but unlike other contemporary electronic instruments, like the theremin

[72] His son (also named Ferde) believed that, because of the lingering post-war anti-sentiments toward Germans, the "von" in his full name, Ferdinand Rudolph von Grofé, deterred many producers and directors from hiring him. This, curiously, stands in contrast to the many other European emigres who found tremendous success in Hollywood. *RX-M* is also a B-movie, strictly on the basis of its limited budget, but its historical prominence elevates the film above his many other B-movie credits.
[73] Care, "Into Orbit: The Scores of Ferde Grofé." 40–41.
[74] Selections included Chopin's Polonaise in A major, Elgar's *Pomp and Circumstance*, and George Gershwin's "Dawn of a New Day." Gershwin's song was supposed to be the official World's Fair song, but they dropped it for an unknown reason. For more details on Ford's booth, see David J. Cope, "Ford," 1939 New York World's Fair, accessed April 4, 2022, https://www.1939nyworldsfair.com/Ponderings/Ford.aspx.

and ondes Martenot, the Novachord was capable of polyphony, due to its advanced oscillator construction. Grofé oversaw the debut of the Novachord at the World's Fair in 1939, and subsequently the instrument enjoyed limited popularity, especially among electronic music composers and film composers. The instrument quickly made its way into concert halls and film scores, with some of the earliest examples being *Gone with the Wind* (1939) and Hanns Eisler's *Kammersinfonie* op. 69 (1940).

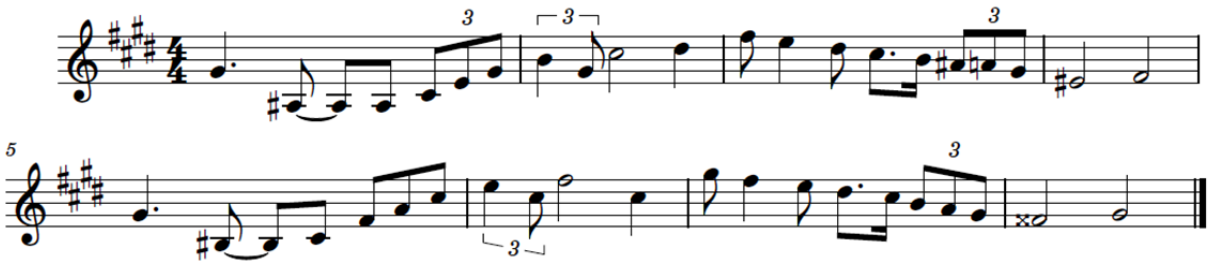
Grofé gave the theremin an entirely different role in *RXM* than the Novachord had in New York. It is not clear where or how he encountered the theremin, or why he decided to use it in *RXM,* but Grofé used the theremin in nearly all the cues used for the Mars sequence. Interestingly there are moments in several cues where he did not compose anything, as seen in his sketches, yet we still hear the theremin in the soundtrack.[75] Though the evidence is not conclusive, it suggests Grofé allowed his virtuoso thereminist, Dr. Samuel Hoffman, to improvise and bring out the instrument's signature "eerie" qualities—glissando between pitches and wide vibrato.[76] The 2012 soundtrack album from Monstrous Movie Music may also provide more insight into Grofé's relationship with the theremin. The final, bonus track on the album, titled, "Noodling on the Theremin," supports my suggestion that Hoffman was given a fair amount of freedom during certain cues in the recording sessions. This short track is just solo theremin playing music that is not written down, most likely an improvised melody, displaying the timbre of the instrument, its expansive range, and its wide dynamic variation.

[75] *Rocketship X-M*, CD (Chatsworth, CA: Monstrous Movie Music, 2012).
[76] Dr. Samuel Hoffman played the theremin on several scores during this period, including its very first use in Hollywood, *Spellbound,* and many sci-fi films of the early 1950s, including *The Day the Earth Stood Still* and *It Came from Outer Space* (1953).

Music from *Rocketship X-M*

In contrast with his seeming inexperience with the theremin, Grofé's familiarity with conventional instruments is clear from his energetic opening cue. For the 12-measure introduction, it seems as though Grofé wanted to instantly catch the audience's attention. After a brazen low brass entrance, he drums up anticipation through a series of increasingly dissonant harmonies and swirling lines in the strings and woodwinds. First, the low brass blast a substantial pedal chord, followed by a dizzying atmosphere created by the raucous trumpets and horns beating out a sharp, militaristic rhythm, while the strings and harp furiously slide up and down. Then, the whole orchestra slides upward one last time, sustaining a lengthy tremolo while the brass initiate a fanfare-like section with horns, trumpets, and trombones playing arpeggios polyphonically, building the suspense and intensity as the ensemble arrives at a dissonant chord. Suddenly, a cymbal crash announces the arrival into E major and the trumpets and horns take over the orchestral texture, playing a heroic theme supported by a continuous harmonic tremolo in the strings. Grofé weaves this main melody through various sections of the orchestra and evokes a sense of excitement and adventure as the narrative looks toward exploration among the stars. However, perhaps foreshadowing future events, the melody abruptly ends with an air of uncertainty as it spins into an unresolved minor seventh chord, fizzling into silence to end the cue.

Example 2: Melody from "Main Title"



While this is playing, the usual title card and opening credits show on the screen. The backdrop slowly zooms out and pans upward, revealing the curvature of the Earth and continuing upward until stars fill the view. This unintrusive background encourages a consideration of outer space's relationship to this music and how we as audience members might emotionally connect with this landscape. For the music that accompanies this visual sequence, the high brass, upbeat tempo, and pervasive major harmonies all contribute to an overarching feeling of adventure and excitement at the prospect of journeying into outer space, sharing these same musical and emotional characteristics with the celebratory theme for "Nature Rejoices in All its Grandeur" at the end of the *Grand Canyon Suite*.

The first scene is rather mysterious, building on the unresolved chord at the end of the "Main Title" cue, which shows a sign on a chain-link fence reading, "U.S. GOVERNMENT PROPERTY: No Trespassing," drawing attention to what might be happening behind the facility's closed doors. Soon after, we witness the RX-M's rocky launch and then travel to the Palomar Observatory. Grofé accompanies the mechanical and technologically advanced observatory with the adventure melody from the film's introduction. At the beginning of the cue ("Palomar Observatory"), we hear the melody in its original form, but for the second occurrence, Grofé slowed down the motif, turning what was a fanfare into a beautiful and romantic rendition, which we hear while the project's leaders discuss the position and progress of RX-M. This romantic version of the melody breaks down into dissonance as the news reaches the leaders that RX-M is off course. The melody disappears entirely as the camera moves back inside the RX-M and Grofé replaces it with the vibraphone and muted violins sounding almost like the twinkling of stars. Given the obvious association between this moment of starry music and outer space, I suggest that the earlier bold, brassy, and uplifting theme represents the Earth and

terrestrial matters, in addition to the wonders of technology and scientific advancement as we witness the inner workings of the observatory.

For "We See Mars," on the other hand, Grofé jettisoned the adventurous musical theme and instead used the Novachord and theremin to highlight the mysterious, ominous Red Planet—the new destination for our troubled explorers. This short cue (just 27 measures) enters right as the crew catches a glimpse of Mars outside the spaceship windows. The theremin does appear earlier in the score, but here the theremin is at the fore of the ensemble, reflecting the atmosphere of the Martian landscape. The theremin enters in measure one, playing a slowly ascending chromatic line with the violins and vibraphones. Grofé wrote below the theremin for it to use an "echo chamber effect," further enhancing the eeriness of its sound. In support of the theremin, vibraphones, strings, and a harp play slow, sustained chords that rise by a half step every three beats. The texture changes in measure seven with woodwinds scurrying up a chromatic melody and arriving on a sustained and flutter-tongued chord and the harp briskly sliding up and down a whole tone scale. The third section, beginning in measure 16, returns to the slow tempo from the beginning of the cue and only the violins play a steadily rising chromatic line, each note played with a tremolo. In measure 22, Grofé introduces the low brass for the fourth and final section, changing the mood once more with ominous, sustained minor chords, which close out the cue. The assortment of extended techniques combined with the distinctive sound of the theremin paint Mars as an enigmatic destination, evoking an air of both spectacle and reservation among the explorers ahead of their accidental arrival.

Because of the theremin's sudden appearance at the sight of Mars through RX-M's porthole windows and its prominence during the Mars sequences, I believe that Grofé used the theremin to sonically symbolize the Martian environment, including the landscape and, as

Wierzbicki has suggested, the Martians themselves. Instead of relegating the instrument to the background, it sounds like Grofé treated the theremin as a principal instrument in this cue, drawing attention to its distinctly electronic sound. In "The Landing on Mars" (Reel 6, Part 1), Grofé again placed the theremin on equal footing with the rest of the orchestral texture, occasionally pushing it to the front of the texture to maximize the impact of the theremin's eerie glissandi between the long sustains with heavy vibrato.[77]

In thinking about the theremin's contribution to *RX-M* and landscapes of outer space, film historian John Tibbetts suggested that "Grofé seems to have inherited the more modernist models of Edgar Varèse's Futurist-inflected works, which utilized the new theremin synthesizer and other electro-acoustic effects in creating what might best be described as "soundscapes.""[78] I do agree with Tibbetts's assessment that Grofé is using the theremin to create a soundscape for Mars, though given the somewhat haphazard musical treatment of the instrument, I hesitate to say that Varèse was foundational to Grofé's compositional process. In this cue, as in the others that follow, Grofé seemed to play into the strange sound of the instrument and the associations that came with its timbre, amplifying the strangeness of the cue overall through a palette of other unearthly timbres. Many film critics noted the eeriness of the theremin's sound, such as Ezra Goodman, who specifically cited this sonic quality as a standout feature of Grofé's score.[79] The review in *The Hollywood Reporter* stated "Ferde Grofé's musical score fits the eerie mood of the

[77] "Reel X, Part X" is the music cue used by the production team to organize the music for the movie, a common practice in film and television production. The first number of the cue indicates which reel contains the music, and the part indicates where on the reel the music is located (reels can hold multiple recordings).
[78] Tibbetts, "Rocketship X-M: The Sounds of a Martian Breeze." 204.
[79] Ezra Goodman, *Daily News*, May 29, 1950.

story," and "Brog" from *Variety* applauded the "eerie music that builds mood," and as a "means used to thrill."[80]

Underneath the theremin in "The Landing on Mars," Grofé composed a pizzicato ostinato for the low strings, creating a sparse, yet creepy musical texture, which enhanced the desolate and rocky Martian landscape where the astronauts found themselves. The musical uneasiness increases in measure 10 with the addition of an English horn solo that features a rising and falling chromatic melody, combining with the theremin to create a polyphonic texture. Grofé expands the polyphony further in measure 22 with a solo flute, playing in contrary motion to the English horn, and then combined with a solo clarinet in measure 23. The dizzying sound of this polyphonic moment might reflect the experience of the disoriented explorers as they step out onto the surface of Mars, knowing very little about their surroundings. Grofé complemented the improvised theremin with the Novachord in measure 37, which plays a whole tone scale in the high register to create what Grofé called a "weird effect." The interplay between all these instruments accompanies the red, arid surface of Mars and recalls moments from Grofé's "The Painted Desert," which also hinted at the various colors and shadows of the desert landscape.

Grofé constructs similar soundworlds for "The Landing" and "We See Mars" by relying on odd timbres and chromatic melodies to illustrate the feelings of the explorers as they take in Mars for the first time. The pervasiveness of the theremin in these cues confirms my suspicion that Grofé intentionally paired the theremin with Mars, and similarly transformed the general timbre of the orchestra to mirror the "otherness" of the landscape and the theremin.[81] The gradually intensifying underscoring builds suspense in this scene as the explorers traverse further

[80] *Variety* (May 3, 1950) and *Hollywood Reporter* (April 25, 1950) reviews.
[81] Wierzbicki, "Weird Vibrations: How the Theremin Gave Musical Voice to Hollywood's Extraterrestrial 'Others.'"

away from the RX-M. The wandering melodies of the polyphonic passage between the woodwinds and the theremin could also suggest the confusion of the explorers as they march through the dusty, rocky terrain. Despite the musical similarities to "The Painted Desert," this cue describes a slightly different landscape than that of the desert. The program notes describe landscape of "The Painted Desert" as "silent, and mysterious, yet beautiful," but here on Mars, the silence and mystery instead foreshadow a lingering, foreign threat.[82]

A key visual feature of this set of scenes is the desert landscape, which was standing in for the rocky and arid Martian surface. For this and other sci-fi films taking place in outer space, the production crew needed a place to film that convincingly appeared like what people imagined outer space might look like, leading them to film their landscape shots out in the middle of the desert. The producers filmed *RXM* over the course of a month in Red Rock Canyon in southern Nevada, just outside of Las Vegas, according to cinematographer Karl Strauss.[83] Though filmed in black and white, the reddish color of the canyon is a perfect choice to simulate the Red Planet. Scientifically, the geological features of the desert have many similarities to other planets, particularly Mars.[84] NASA's Mars Exploration Program states that "some familiar places on Earth are often used by scientists as analogs for the kinds of environments that exist on Mars," including Iceland, Antarctica, the Atacama Desert in Chile, Arizona, and Hawaii.[85]

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[82] *Grand Canyon Suite* program notes, 1938.
[83] Tibbetts, "Rocketship X-M: The Sounds of a Martian Breeze." 197.
[84] NASA/JPL-Caltech, "Desert 'Rover' Helps NASA Scientists Prepare for Mars," NASA Mars Exploration Program, accessed April 14, 2022, https://mars.nasa.gov/resources/24956/desert-rover-helps-nasa-scientists-prepare-for-mars. See also https://mars.nasa.gov/#red_planet/2: "Geologically, Mars and Earth share a lot of common traits, and they are both known as terrestrial (or rocky) planets."
[85] NASA Science, "NASA's Mars Exploration Program," NASA's Mars Exploration Program, accessed August 23, 2021, https://mars.nasa.gov/. See also Sabine Feisst, "The American Southwest as Muse: Maggi Payne's Sonic Desertscapes," *Contemporary Music Review* 35, no. 3 (May 3, 2016): 318–35, https://doi.org/10.1080/07494467.2016.1239384.

As opposed to the more stereotypical greenish and strange-looking aliens we frequently associate with extraterrestrials and Martians in particular (the so-called "little green men"), *RXM*'s Martians instead more closely resemble primitive cavepeople, dressed in tattered animal pelts, and armed with archaic tools and weapons.[86] In the scene I mentioned previously, one of the explorers wonders when they will get to see some Martians, describing them as creatures with "pale faces and pinheads and fishy eyes."[87] Several cues accompany the exchanges between the astronauts and the Martians: "I Saw the Martians" (Reel 7, Part 1) and "The Atomic Age to the Stone Age/The Chase" (Reel 7, Part 2). Grofé accentuates the creepiness of the sneaking Martians through a variety of timbral effects such as stopped horns, pizzicato cellos and basses, and muted violins with tremolo. This cue plays right as Dr. Eckstrom notices the Martians slowly and cautiously approaching them and Grofé seems to focus here on creating an air of anxiety about the possible interaction between the two parties. Grofé begins this cue with the Novachord (and pizzicato violas) playing an ostinato figure of D, C♯, E♭, and C, which sounds like a distant, nasal voice. Grofé develops this anxious moment musically with stopped horns in measure three, along with muted violins and theremin playing a dissonant chord with wide vibrato which fades away and then repeats in measure six. As the Martians creep closer to the explorers the music shifts into a much faster tempo. Grofé writes a new ostinato for the bassoons and woodwinds play a trill, which crescendos and accelerates rapidly as the Martians grow closer,

[86] The term "little green men" became instantly popular in 1955 during the Kelly-Hopkinsville sighting in rural Kentucky. The Evansville *Courier* first used the term for its coverage, and others across the country soon followed. The two witnesses described the short, humanlike aliens as silver in color, but the newspaper went with green. Historians have dated the stereotypical appearance of aliens as little green men as early as the turn of the 20th century.

[87] Kurt Neumann, *Rocketship X-M* (Lippert Pictures, 1950).

representing the increasing anxiety of the explorers. As soon as the group becomes aware of the sneaking Martians, the ostinato and trills fade away and the cue ends abruptly.

The cue that immediately follows decisively illustrates the violent meeting between the explorers and the Martians. Grofé reprises the ostinato from "I Saw the Martians," in the first eight measures, but then in measure nine, he amplifies the dynamics and increases the tempo, changing the ambiguous portrayal of the Martians to intimidating and fierce. The low brass entrances in measures twelve and thirteen further intensify the skirmish with rough and thundering dissonant chords, which give way to the wandering theremin. The violins, horns, low brass, and theremin join forces several times in this cue to symbolize the frantic chase. Grofé paired the theremin's wandering melody, which he used to represent the presence of the Martians, with clashing chords, harshly accented low brass attacks, and coarse violin passages, the combination of which characterizes the Martians as a clear threat to the survival of the explorers. Grofé's music here works both as a depiction of the Martians, but also as symbolic of the chase. The cue begins softly and at *andante moderato* tempo, but by the end of the cue, the whole orchestra is playing *fortissimo* at *allegro* tempo, mirroring the gradually increasing tension of this scene. The crew finally reaches safety when they board the spaceship and hastily take off, musically captured by the sound effect in the final four measures of the cue (Grofé wrote "Rocket take off effect" in the score but crossed it out).[88]

Inspired by Grofé's innovative score for *RXM,* Tibbetts posed a question at the end of his essay, which asks "What will be the function and effect of music and performance in an interplanetary age?"[89] My analysis of Grofé's score shows that he actively incorporated many of

[88] Grofé, Rocketship X-M, Reel 7, Part 2, Library of Congress.
[89] Tibbetts, "Rocketship X-M: The Sounds of a Martian Breeze." 206.

the film's actions and emotions into his music by pairing them with a variety of compositional techniques and a very diverse palette of timbres, both electronic and acoustic. It appears that Grofé also made a clear sonic distinction between the Earth and Mars by using consonant harmonies, triumphant brass, and romantically fashioned melodies to represent the Earth and electronic instruments, unusual timbres, and dissonant and minor harmonies to construct the soundworld of Mars. Returning to the spectrum of reality and fantasy, I believe there are moments in Grofé's score that occupy both sides, from the realistic sound effects of the take-off and crash-landing to the fantastically noisy sounds of Mars and the Martians, as represented by the Novachord and theremin.

As the astronauts returned to Earth from Mars, wounded, and scarred from the conflict with the Martians, perhaps they might have gained a new perspective about the perils of space travel. Though touted as the next greatest advance in technology and human exploration, it endangered the lives of the astronauts because of a flaw in the engineering. During the 1950s, when science, technology, and engineering were booming, films like *RXM* shared the cautionary message that these advances also put humans in harm's way, both from the technology itself and from the inhospitable places the technology enabled humans to explore. The idea of technological progress endangering human lives is also the key message in *The Day the Earth Stood Still,* where military nuclearization, not space travel, provoked two extraterrestrial visitors to offer an ultimatum to humans, as well as a new perspective about our role in the galaxy and how to secure our ecological future.

Bernard Herrmann and *The Day the Earth Stood Still*

Though space exploration was no doubt in vogue during these years, not all sci-fi films departed the Earth in search of distant landscapes. In fact, some of the more memorable and influential films from this period were set in familiar locales, most often in the United States. As opposed to the narrative where humans travel out into space, films like *The Thing from Another World* (1951), *The War of the Worlds* (1953), and *The Day the Earth Stood Still* (1951) popularized an "alien invasion" narrative. Stories of aliens invading Earth, as opposed to stories about travel to other planets, meant that filmmakers could offer potentially more relatable experiences for moviegoers, which were sometimes more impactful due to their reflexive critiques on American society. The alien invasion narrative, as film scholar Mark Jancovich notes, "explicitly articulated anxieties about developments *within* American society, rather than simply fears of threat from the outside."[90] The tense, frozen relationship with the Soviet Union certainly contributed to the general anxiety of the American public at this time, though there were also major domestic concerns about the development of nuclear technology. By examining *The Day the Earth Stood Still* (hereafter *TDTEST)* and Bernard Herrmann's acclaimed film score, I show how the film expressed these "anxieties" present in the American society, presented patriotism as a means for ecological protection, and spoke to a larger ecological concern related to nuclear development.

Bernard Herrmann, Conductor and Composer

Bernard Herrmann (born Maximillian Herman; June 1911 – December 1975) was born in New York City to Jewish Russian parents, Ida Gorenstein, and Abram Dardik. Though neither of Herrmann's parents were musical, his father brought him to the opera occasionally and

[90] Mark Jancovich and Derek Johnston, "Film and Television, The 1950s," in *The Routledge Companion to Science Fiction* (Routledge, 2009).

gave him the opportunity to learn violin. In his teenage years, Herrmann studied composition and recognized his talent after winning a composition prize at just thirteen years old. Herrmann continued his music studies through high school. Afterward, he attended New York University to study composition and orchestration with Philip James and Percy Grainger before heading a few blocks north to Juilliard, where he continued his education with Bernard Wagenaar and Albert Stoessel. While a college student in New York, Herrmann made his conducting debut on Broadway and founded the New Chamber Orchestra, which performed music not typically found in the concert halls at the time. Herrmann's composing career took a major leap when he joined the Columbia Broadcasting System in 1933. He began working for the *Columbia Workshop* in 1936 and the next year he was promoted to music adviser and staff conductor at "The American School of the Air."

Though still early in his career, Herrmann's time working in radio would turn out to be perhaps the most influential period of his career as a conductor and composer. The *Workshop* was an experimental program that used sound as a tool to enhance narratives over the radio. The first director, Irving Reis, stated during the debut broadcast, "The *Columbia Workshop* dedicates itself to the purposes of familiarizing you with the story behind radio, both in broadcasting, as well as in aviation, shipping, communication, and pathology, and to experiment in new techniques with a hope of discovering or evolving new and better forms of radio presentation."[91] Reis explored sound effects created through different microphones and aural effects and Herrmann, who composed music specifically for the *Workshop*, played around with a variety of compositional techniques, combinations of instruments, timbres, and acoustic sound effects, matching Reis's

[91] *A Comedy of Danger - The Finger of God*, Columbia Workshop, 1936, http://archive.org/details/columbia-workshop-1938-07-23-100-murder-in-the-cathedral.

experimental design. Of all the composers featured during the show's existence from 1936 to 1947, Herrmann was the most prolific, composing for nearly 65 shows and conducting on a handful of others.

Following his *Columbia Workshop* tenure, Herrmann secured a promotion and conducted the Columbia Symphony Orchestra on several musically focused radio shows, including *Everybody's Music, Invitation to Music,* and *Exploring Music*. According to biographer Edward Johnson, Herrmann viewed these studio concerts as a special opportunity to diverge from the established works that so often filled concert halls. He featured rarely heard pieces, much as he had with the New Chamber Orchestra in New York City. Johnson remarked, "One concert featured the music of Frederick the Great of Prussia; others featured the songs, motets and instrumental works of Richard I, Henry VIII, Charles I, Queen Hortense of Spain, and Louis XIII and Marie Antoinette of France."[92] Programming these relatively unknown compositions would become a hallmark of Herrmann's legacy.

In addition to presenting these lesser-known works, Herrmann frequently featured the music of English and American composers during his programming. He gave American radio premieres of the song cycles *The Curlew* (1920–22) by Peter Warlock and *On Wenlock's Edge* (1909) by Ralph Vaughan Williams, who would become a close friend of Herrmann's later in his life.[93] Herrmann also became close friends with Charles Ives while living in New York and championed much of his music. Herrmann conducted the premieres of several of Ives's biggest

[92] Edward Johnson, "Bernard Herrmann – A Biographical Sketch – The Bernard Herrmann Society," accessed January 27, 2021, http://www.bernardherrmann.org/articles/biographical-sketch/.
[93] He had a tremendously close relationship with Vaughan Williams and the conductor Sir John Barbirolli. Both feature heavily in his correspondence folders at the University of California Santa Barbara Special Collections. Herrmann owned houses in California and in England.

pieces, including a radio premiere of his Third Symphony (1946) while he was the chief conductor of the Columbia Symphony Orchestra.[94]

According to Johnson, Herrmann once remarked about the legacy of art media, saying "The twenty-first century won't be interested in our painting, our literature or our architecture so much as in our motion pictures, because the motion picture is the first truly original art form of the twentieth century."[95] Perhaps it was Herrmann's passion for this special medium that inspired him to become one of the most recognized and prolific figures in film music history, composing over 50 film scores between 1941 and 1978. Herrmann's entry into film music resulted primarily from his radio music career at CBS, especially from his partnership with Orson Welles at the *Mercury Theater Playhouse* and their radio adaptation of *The War of the Worlds*.

Indeed, Herrmann was an influential figure, not just in the concert hall and over the airwaves, but especially in Hollywood where his, perhaps unusual, musical approach contributed to some of the most revered films in history. As Herrmann transitioned into Hollywood, Orson Welles offered Herrmann his first assignment for *Citizen Kane* (1941), but not without some resistance from RKO executives, who argued that he should be paid much less than their first choice, the better-known Max Steiner.[96] Unlike many Hollywood composers, Herrmann was known for writing his own orchestrations, and perhaps this level of compositional control allowed him to distance himself from conventional studio orchestration. Hermann understood the purpose of a film score differently from other composers during the 1950s. For *Citizen Kane*,

[94] Johnson, "Bernard Herrmann – A Biographical Sketch – The Bernard Herrmann Society."
[95] Johnson.
[96] Smith, *A Heart at Fire's Center the Life and Music of Bernard Herrmann*. 72.

for example, he described his score as "a jigsaw" made up of musical bridges that accompanied transitions. The convention at the time, though, was that composers wrote music for nearly the entire film.[97] In an article on *Citizen Kane* published in *The New York Times* in 1941 he wrote,

> "In orchestrating the picture, I avoided, as much as possible, the realistic sound of a large symphony orchestra. The motion picture soundtrack is an exquisitely sensitive medium, and with skillful engineering a simple bass flute solo, the pulsing of a bass drum, or the sound of muted horns, can often be more effective than half a hundred musicians sawing away. Save for the opera sequence, some of the ballet montages, and a portion of the final scene, most of the cues were orchestrated for unorthodox instrumental combinations."[98]

He believed that film music was an integral part of the cinematic experience and that it should be written alongside the film, telling film music scholar Royal S. Brown, "Well, cinema music is the cinema. That's the part of making the picture, not something that's put in later."[99] Herrmann also believed that film music should avoid a leitmotivic structure and primarily be composed of shorter phrases because they are easier to follow from the audience's perspective.[100]

The Day the Earth Stood Still

The Day the Earth Stood Still, directed by Robert Wise and produced by Julian Blaustein, is based on Harry Bates's sci-fi short story, "Farewell to the Master," originally published in October 1940 in the foundational sci-fi magazine *Astounding Science Fiction*. Blaustein's screenplay depicts a flying saucer landing on the National Mall in Washington, D.C., piloted by two extraterrestrial characters, Klaatu (Michael Rennie), a seemingly omnipotent, human-like being; and Gort (played by Lock Martin; named "Gnut" in Bates's short story), a large, metallic

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[97] Smith. 77.
[98] Bernard Herrmann, "Score For A Film," *The New York Times*, May 25, 1941.
[99] Royal S. Brown, *Overtones and Undertones Reading Film Music* (Berkeley: University of California Press, 1994), http://ark.cdlib.org/ark:/13030/ft7m3nb4mh. 291.
[100] Consider the "shrieking" violins from his score for *Psycho* (1960) that have maintained a high pop culture status for decades.

robot. As Klaatu emerges from the ship, the soldiers that surrounded the spaceship upon landing shoot him almost immediately and he is taken to nearby Walter Reed hospital to treat his wounds. After unsuccessfully pleading with his guards to let him speak directly with the president, Klaatu escapes Walter Reed and, because of his human-like appearance, hides easily among the public, stumbling into a nearby boarding house where he meets Helen Benson and her son Bobby. After a tour of several memorial sites in D.C., Klaatu secures a meeting with Professor Barnhardt, with whom he shares his concerns about the development of rocketry and atomic weaponry, suggesting that Earth could be decimated if humans don't change their ways. The next day, to demonstrate his power, Klaatu pauses the time on Earth at noon, and all mechanical and electrical objects stop working. Soon after, Klaatu's cover is blown and the military intercepts his taxi and kills him instantly. Gort, alerted by Helen of Klaatu's death retrieves Klaatu's body and revives him temporarily. Klaatu exits the spaceship and shares his warning message once more to the soldiers and scientists gathered around the ship, and then quickly departs Earth.[101]

The Day the Earth Stood Still balanced the elements of realism and fantasy within the screenplay and set, which is evident by its setting in Washington, D.C.—a very familiar locale—and the silvery flying saucer that lands in the middle of the National Mall. Joe Dante, director of *Gremlins* (1984), *The Howling* (1981), and *Innerspace* (1987), said in the documentary *Making the Earth Stand Still* (1995) that Fox Studios was keen on having realism be a significant element in their movies during the period, citing Louis De Rochemont's movies from the period, specifically

[101] Bates's story differs quite a bit from Blaustein's screenplay. In the short story, Klaatu dies shortly after he steps out from the spaceship and the rest of the story describes Gnut's attempts to reclaim Klaatu's body from a mausoleum and, through the power of advanced alien technology, resurrect Klaatu using a recording of his voice.

The House on 92nd Street (1945). For *The Day the Earth Stood Still*, Dante said "the more realistically we treat this picture, the more believable it will be, particularly for an audience that had not yet proven that it was going to rush out and see every flying saucer movie that came out."[102] Director Robert Wise did not explicitly connect realism with box office success, but he, too, believed that realism ought to be at the core of *The Day the Earth Stood Still*. He said in the 1995 documentary, "We had this opportunity of having a visitor from another planet come to us, so let's make it as everyday as we can in terms of its setting and its surroundings. So it's placed in Washington DC, the capital of our country."[103] Realism, for Wise, was not just recognizable places, but also a recognizable life experience, and he said, "We felt it was very important to make this just as down to earth, as real, as believable as possible, to put our character from the other planet right in the midst of the ordinary, everyday life of people in the country."[104]

Despite the early 1950s being the Golden Age of sci-fi, it was not the most popular genre at the theater, at least not yet. Crime dramas, film noir, musicals, and Westerns were abundant during the early 1950s, and the top grossing film of 1950 was Walt Disney's *Cinderella,* with a grand total of $52 million gross sales in that year alone. The only sci-fi movie to break into the top ten in 1950 was *Destination Moon,* and in 1951 *The Day the Earth Stood Still* was the twelfth-highest grossing movie--just $3.7 million in ticket sales made it the highest of any sci-fi film of that year.[105] Though not the most popular film at the time, one of the most memorable and interesting pieces of the film was Bernard Herrmann's score, which blended parts of a traditional

[102] *Making the Earth Stand Still*, Documentary (20th Century Fox, 1995).
[103] *Making the Earth Stand Still.*
[104] *Making the Earth Stand Still.*
[105] "The Numbers - Top-Grossing Movies of 1951," The Numbers, accessed April 29, 2021, https://www.the-numbers.com/market/1951/top-grossing-movies.

orchestra with an array of electronic instruments, perhaps nodding toward the mixing of reality and sci-fi in the narrative.

The Music from *The Day the Earth Stood Still,* Ecology, and Klaatu's Message

Herrmann believed that his score for *The Day the Earth Stood Still* was one of his most experimental and avant-garde, largely referencing the increased presence of electronics in his orchestration. In 1971, he told Ted Gilling, "At that time, we had no electronic sound, but the score had many electronic features which haven't become antiquated at all: electric violin, electric bass, two high and low electric theremins, four pianos, four harps and a very strange section of about 30-odd brass."[106] The instrumentation used for this film score is unlike many others from this era, but favors Herrmann's compositional style overall, which incorporated a greater diversity of timbres typically unachievable through conventional means. Another key sonic characteristic of Herrmann's score is his extensive use of studio sound effects. Drawing from examples within the score, I argue that Herrmann treated the recording studio as an instrument. Because of his background working in radio, Herrmann was well acquainted with a variety of studio techniques and sound manipulation methods, including panning sounds to different speaker channels (moving left to right, for example) and cutting up the tape recording and playing it in reverse.

Producers and reviewers alike described Herrmann's musical contributions as "weird," especially in the scenes with Klaatu and Gort, but all agreed that Herrmann was critically important to the movie's success. Blaustein praised Herrmann's underscoring: "He was one of the biggest contributors to this movie."[107] He composed 33 cues for *TDTEST,* though many cues are short, between 30 and 90 seconds long.

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[106] Johnson, "Bernard Herrmann – A Biographical Sketch – The Bernard Herrmann Society."
[107] *Making the Earth Stand Still.*

To explore Herrmann's ideas about sci-fi and setting, I analyze several of the cues used in *The Day the Earth Stood Still* and consider how their instrumentation, timbre, and harmony figure into Herrmann's creation of landscape and atmosphere. According to biographer Steven C. Smith, Herrmann's score evoked an "extraterrestrial strangeness, a sense of the bizarre and unsettling."[108] Yet the soundtrack's unusual timbres are set in relief by much more familiar sounding music. In this way, ecological conservation and protection, while not explicit features of the story, emerge as one of the movie's major themes: Herrmann's music evokes a reverence for Earth, disguised as patriotism.

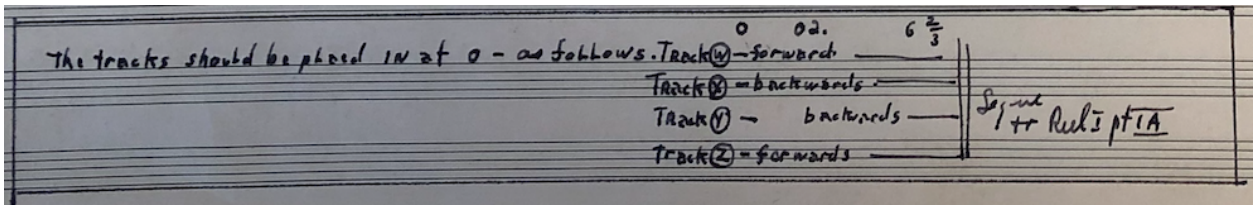
Herrmann's opening cue for *The Day the Earth Stood Still* exemplifies the type of experimental sound Herrmann was trying to achieve by including the theremin and other sound effects in the orchestration. The main portion of the first cue, titled "Outer Space," is preceded by an eight-second introduction, titled "Prelude" (Reel 1, part 1). Here, Herrmann startles the audience by writing a dense and highly chromatic cluster chord across two pianos, three sets of chimes, three vibraphones, a collection of differently sized cymbals, and of course the two theremins. The chord is a combination of an F-major triad and E♭ diminished triad, scattered throughout the pianos, chimes and vibraphones. The sharp attack of the dissonant chord in the keyboards quickly fades as the cymbals take over. Herrmann wrote a sustained roll for all the cymbals, each with a different type of stick (smooth timpani sticks, triangle sticks, and snare drumsticks), crescendoing from a *pianissimo* into a *fortissimo*, over the 6 and two-thirds seconds of the cue. The most noticeable sound in the cue comes from the two theremins, which Herrmann deployed far more idiomatically than Grofé did. Here, they dramatically glissando

[108] Smith, *A Heart at Fire's Center the Life and Music of Bernard Herrmann*. 165.

downward with heavy vibrato, sounding like a high-pitched scream or a siren, building suspense and anxiety within just the first few seconds of the soundtrack.

Herrmann structured this opening section in a manner that reflects his experience in radio and experimental studio sound. Herrmann recorded the elements in the "Prelude" on four separate tracks: track "X" contained the pianos, chimes, and one large cymbal; track "Y," three vibraphones; track "Z," four cymbals; and track "W," the two theremins.[109] Herrmann wrote instructions at the bottom of the sketch for how the four tracks should be played: W and Z forward, and X and Y backward. Though this effect may not be obvious to most audiences, I suspect Herrmann intended for the prelude to sound disruptive and disorienting. By complicating the source of the sound (in a *musique concrète* fashion), Herrmann destabilizes the experience of listeners, who may not know exactly what they are hearing. Herrmann successfully instills a feeling of strangeness and uncertainty, which perfectly sets the stage for the following narrative.

Example 3: Herrmann's recording and playback instructions for "Prelude." UC Santa Barbara Special Collections, Bernard Herrmann papers, box 54.

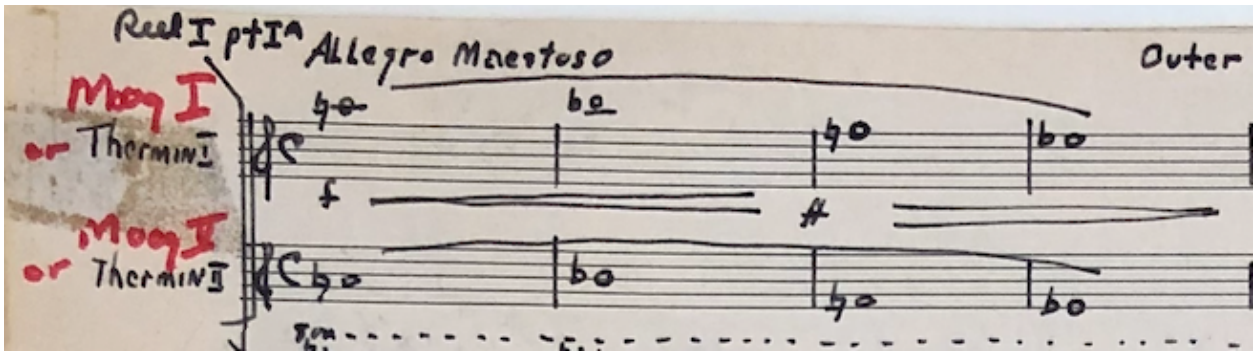


Following this brief introduction, the cue shifts into "Outer Space." By far the most noticeable timbre from "Outer Space" is that of the two theremins drifting back and forth with wide vibrato, repeating the short phrase A-B♭-F-E♭. This quasi-melodic fragment returns

[109] There are two more tracks for the two theremins where Herrmann notated the downward glissando in a sawblade pattern, as opposed to the more linear glissando of the first two tracks. The pitches, duration, and dynamics remain the same for both versions.

frequently throughout Herrmann's score, always performed by the theremin and always with a slight *glissando* between the two pairs of notes. To my ears, the theremins have a semi-vocal quality that feels disembodied and ethereal, as if Herrmann wanted the theremins to sound chilling and spooky. In measure nine, Herrmann modulated to D major and replaced the eerie theremins with jubilant trumpets playing an ascending figure on D-A-D, with the low brass, vibraphones, and studio organ confirming the arrival with a *fortissimo* cadence in D major. Herrmann repeated this section, swapping the roles of the trumpets and trombones on the repeat. During this heroic interjection, the twinkling keyboards and pianos continue their rising and falling patterns. These two sections, one with the theremin, the other with the trumpets, trade off several times before ending with a prominent restatement of the heroic motif played by the full brass section. However, the theremins get the final word, with a forceful E♭–D suspension in both the high and low theremins.

Example 4: The two theremins and their four pitches. UC Santa Barbara Special Collections, Bernard Herrmann papers, box 54.



In the two motifs of "Outer Space," Herrmann embedded musical symbols and references that have a clear relationship to mystery and adventure. The most obvious, which I have already mentioned, are the twinkling sounds of the pianos, glockenspiels, harps, and Hammond organs. The rapid and constant rising and falling arpeggios played by this group of instruments creates a

distinctly starry effect, which runs continuously throughout the cue. The rising brass motif of tonic-dominant-tonic resembles one of the most iconic introductions in all of music history, Richard Strauss's "Sonnenaufgang" ("Sunrise") from *Also sprach Zarathustra*.[110] This connection is important because this opening section by Strauss was used extensively in later decades for sci-fi and outer space themes, perhaps most notably in the opening scenes of Stanley Kubrick's *2001: A Space Odyssey*. The theremin is the final element in "Outer Space." Musicologist Anthony Bushard argued in his dissertation that "Herrmann utilizes the theremin as a main aesthetic idea throughout the score, as opposed to that of a special effect, evidenced in the efforts of Tiomkin and Grofé."[111] Indeed, here we see Herrmann placed the theremin at the fore of the melodic content and it is prominent in the recording, as well.

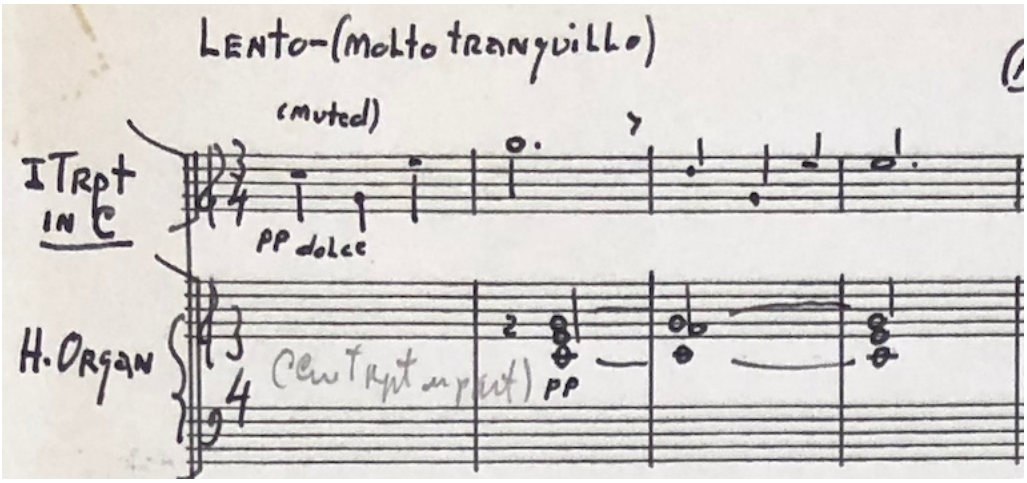
Why choose the theremin, though? There were several other electronic instruments available at the time, like the Novachord and ondes Martenot, but the theremin was the one that stuck with sci-fi. I believe that by the time of *TDTEST*'s premiere in 1951, the theremin had a thoroughly established association with otherness and, thanks to Ferde Grofé and Samuel Hoffman, the theremin quickly became associated with sci-fi in the early 1950s, more specifically with sci-fi landscapes and extraterrestrials. The theremin also connected with outer space in ways that other instruments, either electronic or acoustic, could not. The fully electrified construction and unmistakable sound produced by the interference of two radio waves signaled a

[110] The title of the section alone implies a focus on the environment and its subsequent usage in sci-fi and pop culture added new meaning to that three-note motif, connecting it especially with outer space movies like *2001: A Space Odyssey*. *Toy Story 2* briefly quotes the theme in a video game about Buzz Lightyear; it is used in the climactic scene of *Wall-E,* where the captain fights to take back control over the gigantic interplanetary cruise ship from the rogue autopilot; and it appeared in a space-themed commercial for *The Simpsons*.
[111] Anthony J. Bushard, "Fear and Loathing in Hollywood: Representations of Fear, Paranoia, and Individuality vs. Conformity in Selected Film Music of the 1950s" (Ph.D., Lawrence, University of Kansas, 2006), https://search.proquest.com/dissertations/docview/305320161/abstract/80C8A925BDA4776PQ/1. 290 – 1. Tiomkin used the theremin in his score for *The Thing from Another World* (1951).

technologically advanced future, which conventional instruments were incapable of achieving. The mystical performance practice of the theremin also made this instrument seem otherworldly, with the performer moving their hands smoothly in the space between two antennae, as if the performer were pulling the sound out of thin air. And furthermore, the psychological overtones, most clearly evoked by Miklos Rózsa in his film scores in the 1940s, may have linked the instrument to paranoia and fear, two key sentiments of sci-fi movies. Herrmann could have chosen other instruments to fulfill his compositional goals, but to a certain extent, Herrmann relied on existing notions about the theremin and continued to build its reputation by continuing these ideas in his film score.

In *TDTEST,* Herrmann balanced two different soundworlds: his theremin-centric cues that symbolized the strangeness and eeriness of outer space and extraterrestrials, and cues which emphasized the patriotism and "American-ness" of several settings in Washington, D.C. Many of Herrmann's cues contain a variety of odd timbres and instruments, but two cues in the middle of the score, "Arlington" and "Lincoln Memorial," are set apart from the rest, eschewing all electronic sounds and studio sound effects. As Bobby tours Klaatu around the various

Example 5: Bugle-like trumpet call from "Arlington." UC Santa Barbara Special Collections, Bernard Herrmann papers, box 54.



monuments and historical sites, Herrmann substituted the theremins, harps, and eerie timbres for a more intimate, chamber-like orchestra, headed by the brass section. "Arlington," heard as Klaatu and Bobby (Billy Gray) travel south of D.C. to Arlington National Cemetery, begins with a solo trumpet playing in a similar manner to a bugle call—a fitting choice for the cemetery, the resting place for important historical leaders and more than 300,000 military servicepeople, from the Revolutionary War to the conflicts in Iraq and Afghanistan. The four-measure trumpet call, muted to create a "distant" sound, is supported by a Hammond organ playing simple harmony underneath, beginning on a closely spaced C major chord, moving to a 4-3 suspension, then returning to the C major chord as the trumpet completes the call.[112] A chorale of solo horn and three trombones echo the trumpet and organ and maintain the tranquility of this cue with its rich, smooth sound, as well as the simplicity of melody and harmony. The four-measure phrase for trumpet and organ alternates with the horn and trombones, ending after two repetitions with a final restatement of the trumpet melody.

In this cue it appears Herrmann gestured toward militaristic, hymn-like music, evinced most prominently by the solo trumpet. To my ears, the trumpet solo imitates a bugle call like what might be heard from a military band. The melody follows an arpeggio pattern, moving between partials on the instrument, akin to the valve-less construction of a traditional bugle.[113] War and the military are key features of this scene, as Bobby and Klaatu discuss the nature of Arlington Cemetery and how most of the bodies buried there were from military conflicts. Klaatu, dancing around his true alien identity, mentioned that where he came from, they had

[112] Usually, offstage trumpets would be used to create this effect, but in a studio, mutes are required as physical distance is challenging.
[113] Herrmann's trumpet melody does not exactly replicate a bugle call, as the melody requires the performer to use their valves.

cemeteries, but they didn't have any wars, to which Bobby replied, "Gee, that's a good idea." By choosing the bugle-like trumpet melody and the accompanying organ, Herrmann created a reverent and solemn mood for Bobby and Klaatu's conversation about war.

Later, Klaatu travels directly east across the Potomac River to the Lincoln Memorial, situated at the far west end of the Reflecting Pool and we hear the "Lincoln Memorial" cue. The trumpet melody at the beginning is nearly identical to the one from "Arlington," though louder and without the mute. However, when then trumpet enters after the first statement of the horn and trombones, Herrmann changes the melody from an arpeggio to more stepwise motion, adding a few more minor harmonies, and extending the phrases. While Herrmann generally maintained the same mood between these two cues, what makes "Lincoln Memorial" different is the context. Reading the inscription on the South Wall of the Lincoln Memorial, which contains the text to President Lincoln's *Gettysburg Address*, Klaatu remarked, "Those are great words… he must have been a great man." The messages of both memorial sites are similar, and the closeness of the two cues suggests that Herrmann created an acoustic and patriotic soundworld for the Earth, using these two sites as markers for terrestrial places.

Herrmann's decision to highlight the brass section in "Arlington" and "Lincoln Memorial" created an obvious sonic contrast between these two terrestrial spaces and outer space. Herrmann's heavy use of strange sounds and noises, alongside the evocative theremin, to musically depict Klaatu, Gort, and their spaceship resulted in their portrayal as threatening and negatively "othered," while the chamber-like brass ensemble that accompanied the American memorial sites evoked feelings of solemnity, patriotism, and reverence. Herrmann's music for outer space almost seems to justify the militaristic response to the aliens' arrival, rather than the more diplomatic welcome for Klaatu that might have been warranted. On the other hand,

Herrmann's music for the sites in D.C. paints the United States military as a force for good, excusing the response to Klaatu and Gort's arrival as a means of defending our national ecology.

What makes this musical juxtaposition interesting, from my perspective, is that Klaatu's monologue at the end of the movie problematizes military patriotism and the use of advanced weaponry. Klaatu's message in the ending scenes of the movie reads:

> I am leaving soon, and you will forgive me if I speak bluntly. There must be security for all, or no one is secure. Now this does not mean giving up any freedom, except the freedom to act irresponsibly. Your ancestors knew this when they made laws to govern themselves and hired policemen to enforce them. We of the other planets have long accepted this principle. We have an organization for the mutual protection of all planets, and for the complete elimination of aggression. The test of such higher authority is of course the police force that supports it. For our policemen, we created a race of robots. Their function is to patrol the planets in spaceships like this one and preserve the peace. In matters of aggression, we have given them absolute power over us. This power cannot be revoked. At the first sign of violence, they act automatically against the aggressor. The penalty for provoking their action is too terrible to risk. The only result is we live in peace without arms or armies, secure in the knowledge that we are free from aggression and war, free to pursue more profitable enterprises. Now we do not pretend to have achieved perfection, but we do have a system, and it works. I came here to give you these facts. It is of no concern of ours how you run your own planet. But if you threaten to extend your violence, this Earth of yours will be reduced to a burned-out cinder. Your choice is simple: join us and live in peace or pursue your present course and face obliteration. We shall be waiting for your answer. The decision rests with you.

Klaatu's message is not so much a farewell, but rather an obvious warning to the leaders and citizens of the United States. Klaatu clearly states that the people of Earth should not fear the extraterrestrials, despite their incredible powers over time and space, rather they should fear their own leaders and military institutions who continue to show unbridled aggression on the world stage. Klaatu's message is also ecologically focused and suggests that nuclear aggression, because of escalating conflicts, could lead to the destruction of planets and whole societies. The preservation of peace in this interplanetary ecosystem means that other planets and beings thrive.

While humans with their endless military conflicts pose no threat to this safety yet, they have shown their potential to become an ecological and existential threat. Unlike many alien invasion narratives, where the aliens are clearly the aggressors, Klaatu, who came in peace to deliver this stern message, makes it clear that the humans are instead the violent threat.

Klaatu's sentiment was shared by political leaders of the time, too, with President Dwight D. Eisenhower delivering his "Atoms for Peace" speech to the United Nations General Assembly in December 1953. In the speech, driven by the thermonuclear arms race underway between the United States and the Soviet Union and ongoing nuclear proliferation, Eisenhower advocated that nuclear power be used not to decimate humanity, but rather to empower it. Eisenhower recognized the immense fear of nuclear science, following the two bombs dropped on Japan in 1945, but asked that scientists develop atomic energy to support sectors like agriculture, medicine, and to provide stable electricity in less privileged countries.[114] He closed his speech saying, "The United States pledges before you—and therefore before the world—its determination to help solve the fearful atomic dilemma—to devote its entire heart and mind to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life."[115]

Like other sci-fi films from this era, viewers could interpret Robert Wise's film as a veiled critique of the interactions between the United States and the Soviet Union. Klaatu's message invokes the idea of Mutually Assured Destruction, a military concept that explains in the case of nuclear war between two or more entities, there are no winners. This lingering threat by both

[114] "Eisenhower's 'Atoms for Peace' Speech," Atomic Heritage Foundation, accessed April 7, 2022, https://www.atomicheritage.org/key-documents/eisenhowers-atoms-peace-speech.
[115] "Eisenhower's 'Atoms for Peace' Speech."

sides tacitly encourages neither side to use force against the other, much in the way that Klaatu warns humans about the devastating consequences of future conflict. By considering ecological matters in Herrmann's film score, I show how this film symbolizes the Cold War conflict and carries a message of pacifism and demilitarization for the purposes of ecological preservation, which would benefit not just ourselves but everyone else who shares our terrestrial ecosystem.

The American public suffered not only from nuclear paranoia, but also a "cultural paranoia" that characterized the country following World War II, with its rapid development of technology and the fear of external political pressures.[116] Cyndy Hendershot's psychoanalysis of sci-fi films from the 1950s shows how pervasive social and political paranoia around the "other" and advanced technology were in these films, stemming from the Cold War tensions. These social and cultural critiques were frequent in B-films, where their lowered commercial value granted the directors, producers, and writers greater artistic freedom. (Whereas *Destination Moon* more likely falls into the higher budget category, both *The Day the Earth Stood Still* and *Rocketship X-M* could be considered B films.)

We can also see an interesting perspective on the control of technology through both film scores. Grofé exerted seemingly minimal control over the theremin, allowing Dr. Hoffman to play freely for extended passages in the cues which underscore the Mars landscape sequences. This aligns well with the narrative of the film where a lack of control over the spaceship leads to the crew's arrival on Mars and their eventual demise on the return trip to Earth. The opposite seems true with respect to *TDTEST*, however. Herrmann was a master of the studio and his array of electronic instruments, including two theremins. The score is meticulously detailed,

[116] Hendershot, *Paranoia, The Bomb, and 1950s Science Fiction Films.*

showing Herrmann's comfort with these unusual instruments and control over the technology that could be used to process their sounds with recording equipment. Interestingly in the narrative, we see a strange dichotomy, where the humans lack control over their technological advances, yet Klaatu and Gort exercise huge control over technology. Gort is a very powerful robot, capable of mass destruction, but also able to heal and revive Klaatu. We can also interpret Klaatu's time-stopping ability as a demonstration of his control over technology, as he knocks out all electrical equipment across the Earth.

These early films and their obvious associations of the theremin with extraterrestrial settings laid the groundwork for a cliché sound of sci-fi in Hollywood. Several composers relied on these associations in the years that followed: William Lava in *Phantom from Space* (1953), Joseph Gershenson in *It Came from Outer Space* (1953), Herschel Burke Gilbert in *Project Moonbase* (1953), and Ronald Stein in *Day the World Ended* (1955). Though many of these films were not nearly as popular as the examples from earlier in the decade, they show that the theremin was well-established by the mid 1950s and that audiences, composers, and filmmakers agreed that the extraterrestrial in sci-fi required an electronic sound. Another electronic instrument that made its way into sci-fi scores was the French ondes Martenot ("Martenot waves"), first invented by Maurice Martenot in 1928. Like the theremin, the ondes Martenot developed strong associations with sci-fi and ondist Thomas Bloch described the instrument's associations as "always something with ghosts or aliens."[117] As film composers and audiences gradually came to expect an electrified studio orchestra for Hollywood sci-fi Hollywood, composers eventually went so far as to eschew all human musicians and use an entirely electronic

[117] "Ondes Martenot: An Introduction," accessed April 14, 2022, https://daily.redbullmusicacademy.com/2014/03/ondes-martenot-introduction.

score. This was the case in Louis and Bebe Barron's score for *Forbidden Planet* in 1956, which as we shall see raised its own set of questions about the rewards and perils of technology in outer space environments.

Program of the *Grand Canyon Suite* (Robbins, 1943)

Movement I: "Sunrise"

It is early morning on the desert. The sun rises slowly spattering the darkness with rich colors of dawn. The sun comes from beyond the horizon and a brilliant spray of colors announces the full break of day.

The movement begins with a soft roll on the kettledrums, and a series of chords played by the woodwind follows. The main theme is played by the English horn. The development of the movement is taken up by other instruments reaching a triumphant climax that depicts the dawn of a new day.

Movement II: "The Painted Desert"

The desert is silent and mysterious, yet beautiful. As the bright rays of the sun are reflected against majestic crags and spread across the sands in varying hues, the entire scene appears as a canvas thick with the pigments of nature's own blending.

The movement starts with a mysterious theme played by bass clarinet and viola accompanied by weird chords in the lower registers of the orchestra. It is interrupted by strange harmonies from the woodwind and the upper register of the piano. A contrasting melody of lyric quality follows. This is succeeded by the mysterious music which opened the movement.

Movement III: "On the Trail"

A traveler and his burro are descending the trail. The sharp hoof beats of the animal form an unusual rhythmic background for the cowboy's song. The sounds of a waterfall tells them of a nearby oasis. A lone cabin is soon sighted and, as they near it, a music box is heard. The travelers stop at the cabin for refreshment. Now fully rested, the travelers journey forth at a livelier pace. The movement ends as a man and burro disappear in the distance.

This is the most popular movement of the suite. It starts as the orchestra simulates the loud bray of a burro. After a violin cadenza, the first theme—a graceful melody in a rhythmic pattern—is established. It has the feeling of a burro walking. The second theme of the movement—a melody in Western style is played contrapuntally to the first. This is followed by a suggestion of an old music box, which is played by the celeste. The opening theme is heard again in a faster tempo. The movement is concluded with the bray of the burro and the musical ending, itself, is short and incisive.

Movement IV: "Sunset"

Now the shades of night sweep over the golden hues of the day. As evening envelops the desert in a cloak of darkness, there is a suggestion of animal calls coming from the distant rim of the canyon.

A wild, animal-like call, played by horns, opens this movement. This is followed by the main theme, which is introduced by bells and violins. In the development, the theme is repeated by oboes and violins, then by woodwind and violins, again by cellos and horns, horns and flutes.

Finally the horns again play the calls heard in the opening bars and the movement ends as the tones fade into the distance.

Movement V: “Cloudburst”

This is the most pictorial movement of the suite. We hear the approach of the storm. Lightning flashes across the sky and thunder roars from the darkness. The torrent of rain reaches its height in a cloudburst, but the storm disappears rapidly and the moon comes from behind the clouds. Nature again rejoices in all its grandeur.

Glissando effects in the violin section describe the approach of the storm. It is interesting to note how in the development of the movement Grofé uses all the resources of the orchestra to portray the battle of the elements. The agitated movement subsides, and then follows a gradual crescendo that reaches its climax at the very end.

Chapter Two: Cyborgs and Cybernetics: Electroacoustic Characterization and Ecology in *Forbidden Planet* (1956)[118]

Widely regarded as one of the most influential science fiction films ever produced, *Forbidden Planet* (dir. Fred M. Wilcox) was MGM's first attempt at a science fiction movie. It premiered at the height of the Golden Age of science fiction film in March 1956, just one year prior to the start of the Space Race between the Soviet Union and the United States.[119] By its proximity to this historical period and its scientific advances, *Forbidden Planet* capitalized on the current social interest and mythologized understanding of outer space, providing audiences an imaginary glimpse of what they might come to expect in the Final Frontier. Though there were movies set in outer space released prior to *Forbidden Planet*, like *Rocketship X-M* and *The Day the Earth Stood Still,* it was the first to be entirely set on another planet. Initially a frugal production, with costs "well under" $1 million, though skyrocketing to a final budget of $1.9 million, *Forbidden Planet* was received moderately well at its US premiere.[120] Despite its 'B' movie rating, it netted over $2.6 million at the box office and maintains its renown as a cult classic even today.[121] Critics also received the film quite well. Bosley Crowther of the *New York Times* described the film as "out of this world," and praised the film's pervasive humor, encouraging

[118] A version of this chapter is published in *Lied und Populäre Kultur* 64 (Waxmann Verlag GmbH, 2019), 49–65.
[119] Mark Burman, "Making Music for Forbidden Planet," in *Projections 7: Film-Makers on Film-Making in Association with Cahiers Du Cinéma*, ed. John Boorman and Walter Donohue (London: Faber and Faber, 1997). 252.
[120] James Eugene Wierzbicki, *Louis and Bebe Barron's Forbidden Planet: A Film Score Guide*, Scarecrow Film Score Guides; No. 4 (Lanham, Md.: Scarecrow Press, 2005). 6.
[121] Jane Brockman, "The First Electronic Filmscore - Forbidden Planet: A Conversation with Bebe Barron," *The Score: The Society of Composers and Lyricists* 7, no. 3 (1992): 5–13. 5. The final budget for the movie came in around $2 million, elevating it to the budget of an average A movie at the time, but the movie itself still maintains a B movie feeling.

filmgoers to bring the whole family, "from 8 to 80."[122] In his ranking of the 100 greatest science fiction films, Hollywood screenwriter and historian Douglas Brode placed the film at number five, scoring higher than some major box office successes of recent memory like *The Matrix* (1999), *Inception* (2010), and *Jurassic Park* (1993), and falling just behind the *Star Wars* Original Trilogy (1977, 1980, 1983) and *The Day The Earth Stood Still*.[123]

Forbidden Planet stands as a remarkable source for science fiction film tropes and carried tremendous influence on the science fiction productions that followed. Brode writes that Gene Roddenberry, the legendary producer and screenwriter best known for the TV series *Star Trek*, called upon several features from *Forbidden Planet* for his series, such as blaster guns and the crew teleportation system. A few of the props also made their way into Hollywood TV and movie sets. For example, the flying saucer used in *Forbidden Planet,* as well as its android character Robby the Robot, reappeared in Rod Serling's *Twilight Zone* since Serling filmed the series in the same production lot.[124] Even with these material impacts on the science fiction world in terms of production and screenwriting, it is Louis and Bebe Barron's fully electronic film score, the first of its kind, that represents *Forbidden Planet*'s most important contribution to the future of the genre, highlighting the importance of sound (especially electronic sound and sound effects) in shaping the fantastic environments of science fiction film.

In this chapter, I examine the collision between nature and technology from an ecomusicological perspective, placing this fully electronic film score into perspective with the

[122] Bosley Crowther, "Screen: Wonderful Trip in Space; 'Forbidden Planet' Is Out of This World," *The New York Times*, May 4, 1956, https://www.nytimes.com/1956/05/04/archives/screen-wonderful-trip-in-space-forbidden-planet-is-out-of-this.html.
[123] Douglas Brode, *Fantastic Planets, Forbidden Zones, and Lost Continents: The 100 Greatest Science Fiction Films* (Austin: University of Texas Press, 2015). xxi–xxiv.
[124] Brode. 94.

semi-electronic film scores offered by Herrmann and Grofé from Chapter One. I show that *Forbidden Planet*'s film score and its cyborg sound machines animate the human and non-human characters, and explore how they invent the planet's distinctive landscapes, such as the "Shangri-La" garden. Cybernetic design plays a key role in blurring the line between mechanical and organic, through circuits and machines that replicate biological (and psychological) processes, which is evident in the soundtrack, and particularly in the character Robby the Robot. This film also highlights the benefits and drawbacks of advanced technology. Whereas Robby the Robot is a helpful, human-like robot, the Krell, a creation of Dr. Morbius's subconscious, leads to conflict and the eventual destruction of the planet. The association of human actors with machine-made sounds calls into question the idea of naturalness (or human nature) in ways that parallel the film's mixture of natural and artificial landscapes. This chapter shows how the sound machines built by the Barrons conjure up a cosmic environment filled with objects and beings that we know exist as machines yet function and act biologically.

A galactic adaptation of William Shakespeare's *The Tempest*, *Forbidden Planet* tells the story of Commander Adams (Leslie Nielsen) and his crew's trip to the distant planet Altair IV to check on the progress of a previous mission by scientist Dr. Edward Morbius (Walter Pidgeon). Robby the Robot (as "Himself") greets the crew as they step off the ship and then leads them to the home of Dr. Morbius. After their short visit with Dr. Morbius, a mysterious, invisible creature sabotages the visiting starship in the middle of the night. The following day, Commander Adams, Lieutenant Farman (Jack Kelly), and Lieutenant Oscrow (Warren Stevens) proceed to investigate the home and laboratory of Dr. Morbius, where Dr. Morbius's beautiful daughter Altaira (Anne Francis) distracts Adams. The crew soon discovers that Morbius has

been studying the Krell who inhabited the planet many years ago. Morbius shows them his laboratory, which previously belonged to the ancient Krell, and demonstrates the power of a device called the "plastic educator," which allows users to generate objects through their subconscious. After a second, deadlier attack, the crew decides that they must exterminate the monster, which they learn is an embodiment of Morbius's subconscious created through the plastic educator. As the Krell escalates its attacks to reclaim the laboratory that Morbius stole, the human visitors decide they cannot kill the monster on their own and set the planet to self-destruct. As Adams, Altaira, Robby, and the remainder of the crew speed off into deep space, they watch Altair IV explode in the distance.

Cyril Hume's screenplay and rescripted character design for *Forbidden Planet* eliminates several minor characters from the original play and pares the plot down to its core themes of colonialism, nature, and magic. It also emphasizes psychological perspectives with added Freudian plot elements. The two human inhabitants of the island, Dr. Morbius and Altaira, correspond with Prospero, a magician and Duke of Milan, and his daughter Miranda. Dr. Morbius's cyborg servant, Robby, is a mechanical reworking of Ariel, the sprite servant of Prospero, while we perceive the invisible Krell monster as the cambion Caliban, a half human, half monster offspring of a succubus (or incubus) and a human. Commander Adams most likely represents Alonso, King of Naples, given his title as commander and his role in leading the trip to Altair IV, and Lieutenant Farman is a revision of Ferdinand. The cook (Earl Holliman) is a minor character, often used for comic relief, but he combines Trinculo and Stephano through his drunkenness and jester-like behavior. Just as Prospero's dominion over Caliban in *The Tempest* has inspired critics to consider postcolonial theories of conquest, *Forbidden Planet* and several

other sci-fi films during this era offer their own insights into the detrimental side effects of science and technology in distant galaxies. Remarkable advances during the 1950s allowed humans to explore this brave new world, but *Forbidden Planet* suggests that the same technological "advances" could have unforeseen consequences, including extinction on a planetary scale.

Composing for Forbidden Planet

Following an outpouring of new instrument creation at the beginning of the twentieth century, the sound of science fiction shifted dramatically in the years leading up to the 1950s, with an increased availability of sound-generating devices and major advances in techniques for magnetic tape music composition. The Barrons, in search of an electronic music technique that was suitable for their projects, contended with the numerous electronic instruments had already acquired significant attraction in sci-fi film scores and established a characteristic sound for the genre, such as the Novachord, ondes Martenot, and especially the theremin as we saw in the previous chapter. However, for the Barrons, the simple inclusion of the theremin with the orchestra, where the theremin acted generally as a soloist, was unsatisfactory. Rather than following the scoring practices of those who recently preceded them, the Barrons took a leap of faith with the soundtrack for *Forbidden Planet*, using an entirely electronic score to evoke sci-fi's extraterrestrial otherness.

MGM originally gave the job to Harry Partch, an American composer known for his work with microtonal systems and for creating instruments that could perform these "in-between" pitches. Dore Schary – the head of production at MGM – contracted the Barrons to provide just twenty minutes of electronic sound effects. The Barrons sent their samples to

Johnny Green, head of the music department, and he liked their material so much that he canceled MGM's contract with Partch and instead asked the Barrons to write a soundtrack for the entire film.[125] Any evidence of Partch's material for *Forbidden Planet* appears to be lost, but it is important to see that MGM was looking for a truly modern and contemporary composer for their first attempt at science fiction. The music department was eager to push the boundaries of what a contemporary film score could accomplish, especially regarding science fiction, which Hanns Eisler deemed one of the film genres in which producers can be experimental in their music selections.[126] Critics and film composers praised the Barrons for their innovations, and their score for *Forbidden Planet* stood apart from the rest of sci-fi but had a lasting influence on the genre's sound. In a review written almost thirty years after the film's release, critic Curtis Roads reacted in astonishment to the fully-electronic score, writing "What a contrast to the symphonic style scores for the current flood of outer space films!"[127] Given that Roads was writing in 1983, he may be comparing *Forbidden Planet* to more contemporaneous films of the 1980s such as *Blade Runner* (USA 1982, Ridley Scott, music by Vangelis), *E.T. the Extra-Terrestrial* (USA 1982, Steven Spielberg, music by John Williams), and *Star Wars: The Empire Strikes Back* (USA 1980, Irvin Kershner, music by John Williams). The premiere must have been quite impressive in terms of sound, as Bebe mentioned in an interview with Jane Brockman that they had a tape recorder playing live with the screen along with stereophonic sound. She said that audience loved the soundtrack and burst into applause after the spaceship landing scene. Bebe calls that scene, "one of the best cues in the picture."[128]

[125] Wierzbicki, *Louis and Bebe Barron's Forbidden Planet*. 7–10.
[126] Adorno and Eisler, *Composing for the Films*. 24.
[127] Curtis Roads, "Forbidden Planet," *Computer Music Journal* 7, no. 1 (1983): 73–76. 74.
[128] Brockman, "The First Electronic Filmscore - Forbidden Planet: A Conversation with Bebe Barron."

The Barrons' studio on West 8th Street in Greenwich Village was the opposite of the Hollywood studio where the film was produced. Originally a spare room in their apartment, it was incredibly small, but packed wall-to-wall with oscillators, vacuum tubes, resistors, semiconductors, and cutting-edge tape-recording equipment.[129] The precarity of the arrangement of their studio is best captured in Bebe's own words: "everything in our studio was held together with paper-clips."[130] Nevertheless, the Greenwich studio was perhaps the most advanced electronic music studio in the United States of the period, competing with electroacoustic studios in both Cologne and Paris, and predating the far more well-known Columbia-Princeton studio by nearly a decade. At this studio, where John Cage – who at one point was actually paying the Barrons's rent[131] – composed breakthrough compositions such as *Williams Mix* and the *Project for Music for Magnetic Tape* (both 1952/53), the Barrons quickly established themselves as eminent tape music composers, using what they believed to be the first tape recorder in the United States, a German model, which they received as a wedding gift in 1947.[132] Bebe Barron stated in an interview with Eric Chasalow in 1997, "we were very lucky when we were able to obtain the very first tape recorder in the world…we shot off to New York, moved to the Village and decided we were going to be a part of that life."[133] This tape recorder played a major role in the development of the score since electronic instruments during the 1950s, like the theremin, did not suit the

[129] Wierzbicki, *Louis and Bebe Barron's Forbidden Planet*. 32.
[130] Burman, "Making Music for Forbidden Planet." 256.
[131] Burman. 255.
[132] Joel Chadabe, *Electric Sound: The Past and Promise of Electronic Music* (Upper Saddle River, N.J.: Prentice Hall, 1997). 55. The model of tape recorder they were gifted was the first of its kind and no others like it existed in the US. Hitler famously used this model to record himself so that if he died, his recordings might convince people that he was still alive.
[133] Bebe Barron: Interview by Eric Chasalow, Video Archive of Electronic Music, 1997. Online available via http://ericchasalow.com/oralhist.html (accessed on June 24, 2019). They previously lived in Monterey, California.

types of sounds the Barrons were searching for. Ultimately, they were forced to build their own sound-generating machines. As Bebe recalled, "we built almost all the equipment ourselves because there wasn't any to buy, really."[134]

The Barrons played a crucial role in the production of *Williams Mix*, making over 600 recordings before the tape assembly, and this project brought the Barrons in contact with the likes of Earle Brown, Morton Feldman, Christian Wolff, John Cage, and David Tudor, exposing them to the current champions of electroacoustic and tape music in the United States.[135] John Cage was particularly influential on the Barrons from the standpoint of indeterminacy, though Cage and the Barrons differed significantly in their approach to indeterminate music. In addition to the several compositions they assisted in producing, the Barrons also found time to compose their own magnetic tape pieces, many of which drew inspiration from the works of those who visited their studio. Three early electronic pieces the Barrons composed were *Heavenly Menagerie* (1950), a film score for *The Bells of Atlantis* (1952), and, the fourth composition from the *Williams Mix* Project, *For an Electronic Nervous System* (1953–54).[136] Whereas Cage found his indeterminate foundation in the Chinese *I Ching*, an ancient divination text which uses cleromancy to produce sets of random numbers, Louis and Bebe derived their indeterminacy from more organic and mathematical processes.[137]

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[134] Bebe Barron: Interview by Eric Chasalow. Robert Moog invented the Moog Synthesizer in the 1960s, nearly a decade after *Forbidden Planet*.

[135] Barry Schrader: *Introduction to Electro-Acoustic Music.* New Jersey: Prentice-Hall 1982, p. 26.

[136] The Barrons also wrote the music for George Axelrod's and Clinton Wilder's Broadway production of Gore Vidal's *A Visit to a Small Planet*. The show ran 1957 and 1958 at the Booth Theatre in New York for a total of 388 performances.

[137] Cage's *Music of Changes* (1951) for solo piano is one of the better known of Cage's indeterminate compositions related to the *I Ching*.

Bebe, referred to by many as the godmother of electronic music, was the primary "composer" for this film score, but she often receives much less credit for her work on this score than she deserves. Musicologist Reba Wissner wrote that, for *Forbidden Planet,* Bebe was clearly "performing the role of composer, choosing appropriate music for appropriate places based on the emotion and plot of the film at that moment. … It was Bebe's ear and intuition that facilitated the shaping and composition of the score."[138] Louis said he left the sound decisions up to Bebe because she "had a remarkable ear for discerning what it would sound like to the observer of the film."[139] Bebe is a remarkable figure in this story because she was one of the few women involved in electronic music in the mid-century. She received a master's degree in political science from the University of Minnesota and then studied composition at the University of New Mexico. Her talent in composition led her to work with prominent composers of the 20th century, including Roque Cordero, Wallingford Riegger, and Henry Cowell. She met Louis in college, and both agreed they wanted to pursue composition together, but their efforts were delayed because of their tight financial situation. They wouldn't begin composing in earnest until they received that tape recorder, with which they became pioneering figures in experimenting with magnetic tape methods. After *Forbidden Planet,* Bebe would continue to compose electronic music, mainly for shorter films for industry and organizations, such as her score for *Quartz Crystal Growing* (1962) for Western Electric/AT&T and *The Computer Age* (1968) for IBM. Analyzing Bebe's score for *Quartz Crystal Growing*, Wissner suggests that "it is often unclear if the sounds we hear are her music or the diegetic crystal sounds," creating a "sonic

[138] Reba A. Wissner, "A Universal Mind: The Film Music of Bebe Barron," in *Women's Music for the Screen: Diverse Narratives in Sound*, ed. Felicity Wilcox (New York: Routledge, 2022), 24–34. 27. See also Burman 1997, 261.
[139] Burman, "Making Music for Forbidden Planet." 261.

ambiguity" that is similarly present here in *Forbidden Planet*.[140] Writer and composer Mark Harris perceived a consistent palette of sounds from Bebe's film scores, which often included "high-pitched … sine tone whines, dry whistling, siren-like drones, or chirruping electronic pulses," with periodic melodies and natural sounds like water and wind.[141]

A self-taught electronics engineer, Louis did nearly all the engineering for *Forbidden Planet*'s sound machines himself by hand, with occasional assistance from Bebe. He carefully constructed the sound machines circuitry in accordance with the science of cybernetics, recently developed by Norbert Wiener, professor of mathematics at MIT. Louis, an avid reader according to Bebe, had been studying the concepts intensely since Wiener's publication of his findings in late 1948. Wiener's theory postulates that "there are certain natural laws of behavior applicable alike to animals (including humans) and electronic machines of certain types of complexity."[142] Wiener's work inspired Louis to translate the dense mathematical schematics into sound machines that would "function electronically in a manner remarkably similar to the way that lower life-forms function psychologically."[143] The Barrons often conceived of these circuits as "react[ing] emotionally with strange and meaningful sound." The Barrons continue, writing in an article from 1956:

> If we think of these electronic personality circuits as character actors, then when we compose for them, we function like writer and director. Like writers, we first decide on a *cast of characters,* and design and built the circuits to act out the character parts. Then we structure a *dramatic plot* in which these electronic characters interact with each other as the plot unfolds. Now we become directors

[140] Wissner, "A Universal Mind: The Film Music of Bebe Barron." 30.
[141] Mark Harris, "Pipilotti Rist's Music," in *Wishing for Synchronicity: Works by Pipilotti Rist*, ed. Paola Morsiani (Houston: Contemporary Arts Museum, 2006), 14–23. 18.
[142] Bebe Barron and Louis Barron, "Forbidden Planet," *Film Music* 15, no. 5 (1956): 18.
[143] Barron and Barron.

> and see to it that the actor-circuits get their cues at the right times and express their characters authentically and effectively.[144]

The Barrons' statement accentuates the biological and technological binary within the movie while likewise drawing attention to the way they interacted with their idiosyncratic robots. They perceived their machines as having a technological construction yet functioning in a strangely human way.

Donna J. Haraway, ecofeminist and science and technology scholar, defines cyborgs as beings that are both animal and machine and exist as cybernetic organisms. This formulation captures the essence of how the Barrons imagined their cyborg sound machines, both physically through Louis's engineering, and socially by Bebe's perception of them as "character actors."[145] In particular, Haraway's definition seems apt for considering the androgynous character Robby the Robot – another cyborg by Haraway's definition. Robby behaves like a human and can emotionally engage with other humans, yet Robby is a programmable, mechanical entity—a robot—which interprets inputs and generates an output. In similar fashion, the Barrons' sound machines generate sonic output as a direct result of their construction; their vacuum-tube oscillators and sine-wave frequencies have their own distinct sounds, but they seem to respond so independently that they evoke exceptional organicism. The most salient features of the soundtrack stem from how the Barrons assigned specific machines to specific characters within the movie, and how they modified the machine-generated output to suit dramatic situations. The bulk of this labor ultimately fell to Bebe. Whereas Louis was responsible for constructing

[144] Barron and Barron.
[145] Donna J Haraway, "A Cyborg Manifesto," in *Manifestly Haraway* (Minneapolis: University of Minnesota Press, 2016). 5–6.

the sound machines, she was responsible for the splicing of magnetic tapes, changing their speed or direction, and weaving the musical tapestry that shaped Altair IV and its inhabitants.

When brainstorming for the soundtrack, Bebe and Louis agreed to several aspects that they wanted their music to evoke: randomness, feedback, probability, information theory, and entropy.[146] Bebe realized the potential for her score to change the way audiences heard outer space and in an interview in 1992, she revealed that it was her goal to match the imagined sound of interplanetary space travel. She spoke directly about her and Louis's commitment to creating new sounds, stating that if any of their circuits began to sound like existing instruments, they rejected the circuit and threw it away.[147] The Barrons distancing themselves from human performers and terrestrial sounds brought its own set of complications. The American Federation of Musicians (AFM) forbade the Barrons from calling their composition a soundtrack because there were no human performers on the record, and so the Barrons and MGM agreed on crediting their music as "electronic tonalities."[148] As music theorist Stephan Prock wrote about *Forbidden Planet's* soundtrack, "in one important respect, the film's musical surface is immediately readable in itself: as a signifier for the strange, the uncanny, the alien."[149] Both Prock's and Bebe's comments show that the Barrons were keen to create a soundworld that would be as distant from conventional scoring practices as the film's setting was from Earth.

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[146] Brockman, "The First Electronic Filmscore - Forbidden Planet: A Conversation with Bebe Barron." Regarding her statements about the sounds of outer space, she said, "I just knew instinctively that that's what it has to sound like when you're traveling through space." PAGE?

[147] Brockman. "If our circuits started doing things that even remotely resembled existing instruments, we just tossed it out. We didn't even want to sound like any existing instrument, it was totally out of our realm." PAGE?

[148] Steve Rubin: Retrospect: *Forbidden Planet. Cinefantastique* 8 (1975), no. 3, p. 12.

[149] Stephan Prock, "Strange Voices: Subjectivity and Gender in Forbidden Planet's Soundscape of Tomorrow," *Journal of the Society for American Music* 8, no. 3 (August 2014): 371–400, https://doi.org/10.1017/S1752196314000248. 381.

The electronic tonalities composed by the Barrons, sonically described by Crowther in the *New York Times* as an "accompaniment of interstellar gulps and burbles," employ a familiar construction related to a series of Wagnerian leitmotifs.[150] Bebe spoke directly about assigning sound to each character, saying "we would build a circuit for each character; they were like leitmotifs, I guess."[151] This musical structure further blurs the distinction between what is human and what is non-human. Sometimes the sounds used for a given character were all too explicit. For instance, Bebe remarks that, "when Morbius dies, we used the actual dying of that circuit; you can hear it going through agonies of death and winding down. It was really sad, very pathetic. We could never get that circuit to do anything afterwards."[152] One must also consider that the Barrons were recording all these sounds onto magnetic tape, allowing them to further manipulate the strange electronic sounds produced by various vacuum-tube oscillators. Music theorist Rebecca Leydon suggests that because the sound machines and circuits functioned independently, the Barrons could actually spend more time manipulating the resulting tape recordings.[153] Bebe describes their processes saying that "the techniques were so utterly simplistic that I hate to even mention them, but we did dumb things like playing tapes backwards and slowing down the speed."[154] Though Bebe describes these methods as "simplistic" and "dumb," these processes were in fact the leading edge for tape music composition in the 1950s.

Although the Barrons' compositional foundation was unique, inventive, and, as Leydon describes it, "an important milestone both in film-music practice and in the field of electronic

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[150] Crowther, "Screen."
[151] Burman, "Making Music for Forbidden Planet." 258.
[152] Burman. 260.
[153] Rebecca Leydon, "Forbidden Planet: Effects and Affects in the Electro Avant-Garde," in *Off the Planet: Music, Sound, and Science Fiction Cinema*, ed. Philip Hayward (Bloomington: Indiana University Press, 2004). 61.
[154] Burman, "Making Music for Forbidden Planet." 260. In Jane Brockman's interview with Bebe, she mentions the possibility that she and Louis were the first composers in history to create a tape loop.

music," it eventually passed away with the invention of the keyboard synthesizer and more advanced electronic instruments.[155] While they were not the first to work with entirely electronic compositions – consider, for example, French composer Pierre Schaeffer's work *Étude aux chemins de fer* (1948) – many film makers and composers today still recognize their groundbreaking contribution. Although the Barrons' process is entirely non-reproducible, it cemented the transition from the simple inclusion of electronic instruments such as the theremin, into fully-fledged machine-based music for the film screen. To highlight the organization and construction of this film score, I will elucidate the leitmotivic technique implemented by the Barrons, matching sound with source, and examine how cybernetic design enabled the machines to represent the characters, their dramatic variants, and the environments they perform sonically and technologically.

The opening scene of the movie follows a traditional format, beginning with the credits presented over an interstellar backdrop, while the overture plays in the background. The MGM Lion roars alongside the sirens of oscillators and other electronic stutters, glissandi, and scratches. After a few credit slides fade from view, the phrase "AND INTRODUCING, ROBBY, THE ROBOT" appears in big yellow letters across the screen. At this moment, the musical texture shifts immediately from the sirens and glissandi to a smattering of beeps and twinkling drops of sound, a sound that has since been typecast for other cinematic robots (e.g., R2-D2). Given that the Barrons employed a leitmotif technique that connects the machines to the characters, we can assume that this series of sounds will be reprised when Robby himself appears on screen. Indeed, Robby's sound machine reappears later in the scenes where Altaira

[155] Leydon, "Forbidden Planet: Effects and Affects in the Electro Avant-Garde." 61.

asks Robby to sew a gown for her (38:18), when Robby arranges a bouquet of flowers while shooing off a monkey with lasers (42:45), and when Robby makes 60 gallons of Kentucky Rye for the cook.[156] The music from the first scene is a conservative variation of the original theme from the opening credits, perhaps mimicking Robby's more domestic, subservient qualities portrayed in this scene. In the second example, we hear a lighter and more bubbly variation of the original Robby theme, reinforcing the whimsical and playful quality of this scene, where Robby zaps an annoying monkey trying to steal fruit from the table. The theme is destabilized and deconstructed in the final example, and the electronic sounds are further distorted into scratches and gurgles, evoking Robby's "drunkenness" after he produces an immense amount of alcohol from a single drop.

The sound circuit for the invisible Krell monster has a character distinctly different from Robby's beeps and trickles. A creation of Dr. Morbius's subconscious, the Krell lurks throughout Altair IV and over the course of the movie, the monster becomes more life-threatening to Commander Adams's crew as well as Dr. Morbius himself.[157] The sound machine associated with the Krell monster has a deep, creeping bass-tone that grows in intensity as the Krell moves closer to the starship crew. However, the circuit for the Krell monster initially sounded much higher and far different from the final version. Bebe mentions that when the Krell circuit first produced sound, they struggled to figure out what to do with the "very high pitched, tinkling, and very complicated harmonic sounds" that bore no resemblance to a beast. To make the Krell

[156] The soundtrack produced by Planet Records (1976) lists the tracks as "Main Titles – Overture," ""Robby, Make Me a Gown"," "Robby Arranges Flowers, Zaps Monkey," and "Robby, the Cook, and 60 Gallons of Booze." There is no indication that the Barrons created these titles, so I have left them out of this text and instead use timestamps from the film (purchased digitally from Amazon Prime).
[157] The Planet Records album lists this cue as "The Monster from the Id," alluding to some of the more psychological aspects of this film and science fiction overall.

circuit more threatening, Bebe slowed the track down over 60 times by "playing it back at half speed while rerecording at 15 inches [i.e., 39 cm] per second (IPS)."[158] Once they slowed down the tape, the rhythmic intensity, the "lumbering sounds" that Bebe described, of the circuit became more apparent. The rhythmic qualities of this track are audible because of Bebe's manipulations, but they are also the organic result of that specific circuit – tied to the mathematical equations derived from its individual, cybernetic sound machine.

We first encounter the Krell and the most basic form of the Krell sound machine in the scene where the Krell monster passes two crew members and enters the spaceship. It plods away, slowly, and deliberately, gradually gaining in intensity as the bass tones hit much harder and the background sounds surge to their peak at the end of the scene, before settling once more. Following these first Krell sounds, we hear hints of the Krell machine in the scene where Dr. Morbius gives a history of the Krell who previously inhabited the planet. Morbius plays an ancient recording of Krell music, though it is hidden among a mystic and airy sonic texture, evoking the age of the recording. Prior to the final attack by the Krell monster, we hear the Krell machine as the Krell approaches the spaceship. The music in this scene presents the Krell sound in a more threatening manner, as it Mickey Mouses between the bass tones produced by the Krell machine and the footsteps, which crescendo as the Krell nears the spaceship, heightening the suspense of the scene.[159] The Krell sounds were subject to manipulation for dramatic effect just as Robby's sounds were, but the Krell monster and its associated sounds and invisibility

[158] Brockman, "The First Electronic Filmscore - Forbidden Planet: A Conversation with Bebe Barron." 12.
[159] On the Planet Records album, the tracks are titled "An Invisible Monster Approaches," "Ancient Krell Music," and "Giant Footprints in the Sand." The album lists "Giant Footprints in the Sand" before "Robby, the Cook, and 60 Gallons of Booze," but in the film, "Giant Footprints in the Sand" sounds directly after Robby gifts the cook the 60 gallons of booze.

complicate the boundary between character and landscape. Is it a beast or, Dr. Morbius, or the planet itself? After all, it can only be eliminated by destroying the entire planet, which, falling in line with the sci-fi films from earlier in the decade, we can easily as standing in for nuclear weaponry. Later, when the Krell is finally defeated, through the Barrons's music we hear the Krell's suffering as the circuit whines and whirrs its way to death, much in the same way that the humans eradicated any remaining lifeforms on Altair IV.

Ecology and Post Colonialism

We do not know the fictional circumstances that inspired Dr. Morbius's original mission or his encounter with the Krell, but we can speculate that his goal was to see whether Altair IV was habitable for humans, a frankly colonial enterprise, made more significant by his domination of the planet's indigenous life forms. Much like Prospero in *The Tempest*, Dr. Morbius has been able to appropriate all the ancient Krell laboratory equipment for his own uses, banishing the self-created Krell monster to the outside world. The impulse to colonize is pervasive not just in this film, but in the science fiction genre from its inception. *Rocketship X-M* and *Destination Moon,* for example, treat the Mars and the Moon as a target for human exploration and expansion of scientific capability and knowledge. Though there are no inhabitants on the Moon of *Destination Moon*, the stereotypical "flag in the ground" illustrates the claim of ownership by the first people to arrive – in this case, the American astronauts who triumphed over their Soviet rivals in the Space Race. For *Rocketship X-M*, the accidental discovery of an ancient Martian civilization pits the human explorers against a once-advanced now barbaric population in a violent encounter. Their quick departure from the planet, and their fatal landing on Earth

represents the potential negative consequences of cosmic conquest, either for the human visitors or the natives, like the Krell monster in *Forbidden Planet*.[160]

The relationship between the Krell and the landscape is fraught, considering that the Krell is both the native species of the planet, and an invisible, apparently intrusive but omnipresent force. The characters required a myriad of sound modifications to alter the sound to match the actions and drama on screen, but for the unchanging landscapes throughout the film, the Barrons focused their attention more on matching the sound to the elements within the environment it was representing. Altair IV presents two distinct landscapes ripe for ecological analysis: the barren desert of the planet, and the lush garden constructed by Dr. Morbius. Like earthly gardens, the garden in *Forbidden Planet* represents a mixture of natural and artificial landscapes. Situated behind Dr. Morbius's residence, the garden is a luxurious, artificial oasis on Altair IV and appears to be the only such environment on the planet. The rest of the planet is a vast, open, and lifeless space, akin to a desert or moon-like surface. The physical juxtaposition of these two locations is highlighted in their sonic representations. The barren landscape is often marked with a static texture, while the garden's sound is more active and contains a sound like that of water drops, indicating the presence of life and the body of water that exists within.[161] The use of cybernetics and resulting organicism of the soundtrack calls into question our

[160] The popular TV series *Star Trek* (1966–1969) also involves many instances of colonialism, implicitly in its exploratory mission and explicitly as the members of the Starship Enterprise encounter aliens and other beings. The show engages with the conquering of lands and planets, but also with the dominance of a certain group or race of people over another. Science fiction films are clearly amenable to postcolonial readings, particularly in their obsession with the costs and rewards of human conquest.

[161] The track title from the Planet Records album provides an interesting allusion: *A Shangri-La in the Desert/Garden with a Cuddly Tiger*. The Shangri-La of James Hilton's novel *Lost Horizon* is a utopian valley between the mountains of Tibet and pairing *Forbidden Planet's* galactic garden with the earthly Shangri-La emphasizes the mystical nature of this environment. James Hilton: *Lost Horizon.* London: Macmillan Publishers 1933. Shangri-La has been associated with other gardens as well, particularly an azalea garden in Orange, Texas, built in 1937, among many other spaces around the world (mostly related to tourism).

perception of natural qualities of this space and accentuates its artificiality as a "natural" environment, complicating the history of pastoral gardens as a natural refuges where characters engage in intimate interactions, both consensual and predatory. These desert and garden environments also resonate alongside those terrestrial landscapes studied by ecomusicologists.[162]

As opposed to the hostile and barren surface of Altair IV, where the human explorers and the Krell monster exchange lethal blows, Morbius's garden makes space for romantic encounters, particularly between Commander Adams and Dr. Morbius's daughter, Altaira. Like Miranda of *The Tempest,* Altaira was born and raised on Altair IV and given that she has not met human beings other than her father, her naiveté in love and romance is often the entry-way for the commander's and the cadets' advances.[163] The garden is further sexualized through Altaira's attire, where in several instances she wears a mini skirt – quite fashion-forward for the 1950s, according to film historian Rudy Behlmer – while kissing Lieutenant Farman, and another when she is approached while swimming "nude."[164] Love's thematic connection with the garden is a traditional pastoral trope that reaches as far back as the biblical Garden of Eden, where Adam and Eve represent the natural roots of humanity. Significantly, this garden is also as a site for the introduction of sin through the quest for knowledge. The special relationship between the

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[162] Wye J. Allanbrook: Human Nature in the Unnatural Garden: *Figaro* as Pastoral. *Current Musicology* 51 (1993), pp. 82–93; Sabine Feist: Music as Place, Place as Music: The Sonic Geography of John Luther Adams. In: *The Farthest Place: The Music of John Luther Adams.* Ed. by Bernd Herzogenrath. Boston: Northeastern University Press 2012, pp. 23–47; Beth Levy: *Frontier Figures: American Music and Mythology of the American West.* Berkeley: University of California Press 2012. There are, of course, many others to choose from.

[163] *Amazing! Exploring the Far Reaches of Forbidden Planet.* Produced by Jonathan Strailey (USA: Warner Home Video, 2006). In this documentary on the film, Anne Francis described Altaira as "the perfect virgin."

[164] Ibid. I place nude in scare–quotes simply because Adams's reaction to seeing her in the pool implies her nudity. He turns his back quickly and remarks "Oh, murder," to Altaira's response of "What's a bathing suit?" This continues until Altaira has put on a dress, but from watching this scene, she is wearing clothing while in the pool. Regardless, the effect remains.

characters and the garden setting reminds us that science fiction films bring ecological perspectives into play. In this case, the garden's stereotypical mix of natural and artificial is echoed by the soundtrack's cybernetic complication of the biological/technological binary.

Sonically, this scene proved challenging for the Barrons, since Johnny Green – head of the music department – responded to their initial submission saying, "Oh my god, I didn't want the end of the Earth, I wanted love." This perplexed Bebe in particular, who struggled for several weeks to find the proper music to accompany this garden setting.[165] The electronic tonalities of the Barrons' sound circuits work perfectly for an outer space setting, but since they threw out all the traditional and terrestrial sounding circuits, which would have offered them an easy means of representing the romantic garden, they were forced to add sweeteners to their sound machines.[166] By sticking with electronic music for this location, instead of opting for an orchestral instrumentation, the Barrons accentuated the complexity of this specific garden—surrounded by an alien desert on a distant, foreign planet—blurring its perception as a truly "safe" space.

Barbara Fuchs has written an intriguing analysis of *The Tempest* both as a mirror of "the European colonial experience in America," and as a metaphor for colonial conquests around the world.[167] Capturing this idea of expansion, *Forbidden Planet* transfers Fuchs's concept of "conquering islands" into outer space, translating it into the conquest of planets, moons, and other extraterrestrial environments. Furthermore, the likeness between Altaira's name and the

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[165] In this interview with Brockman, Bebe mentions that she didn't fly, so she was driving back and forth from New York to Los Angeles, giving her ample time to think about how she would design a new sound for the garden.
[166] Brockman, "The First Electronic Filmscore - Forbidden Planet: A Conversation with Bebe Barron." Bebe mentions directly that violins, a terrestrial sound, as part of conventional film scoring would have been the most obvious choice, but they didn't have anything like that in their collection. Ultimately, Bebe found the right sound, "a single legato sound, several times at different pitches."
[167] Barbara Fuchs, "Conquering Islands: Contextualizing The Tempest," in The Tempest: Sources and Contexts, Criticism, Rewritings and Appropriations, ed. Peter. Hulme and William H. Sherman, 1st ed., Norton Critical Editions (New York: W.W. Norton, 2004). 265.

name of the planet, Altair IV, create a striking parallel between Altaira's sexual virginity and the planet's relative virginity to human explorers bent on colonization and control. In *The Tempest*, Trinculo, a European, encounters Caliban for the first time, and remarks about how he could capture Caliban and turn him into a for-profit exhibition for visitors to see.[168] For Commander Adams, however, Caliban's counterpart, the Krell monster, is invisible and much too powerful for the crew to capture. It is rather the Krell laboratory and Krell equipment that Dr. Morbius discovered and appropriated for his own use that Commander Adams and his crew wish to take back to Earth with them. The root metaphor that distinguishes *Forbidden Planet* from Shakespeare is not the enslavement of people or beings, but rather the allure of technological domination and the sovereignty of information and knowledge, which can be equally read through cybernetics and the Barrons' sound machines.

Wiener writes directly about the potential of cybernetics for both good and evil. He foresaw that mechanized slaves could give humans a new and effective way to perform labor. Although this mechanized slavery lacks the inherent property of human control over another human in a demoralizing and cruel relationship, Wiener recognized its similitude with slave labor, and states that in a surface-level comparison, human command over cyborgs could be understood as slavery.[169] In the case of *Forbidden Planet,* is it reasonable to imagine Bebe and Louis Barron's control over their cyborg sound machines as exploitive slave labor in service of film score composition? In the *Tempest*, Prospero obviously exerts his authority and control over

[168] Fuchs. 268.
[169] Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society*, Discus Book (New York: Avon Books, 1967). 26.

Caliban, torturing him with magic whenever he disobeys Prospero's orders.[170] The situation with the Barrons is more complex. The cyborg sound machines are only semi-autonomous with respect to the final soundtrack. Bebe and Louis had ultimate control over the construction of the machines, and which sounds the audience heard, limiting the true indeterminacy and freedom that they so frequently spoke about. Cybernetic design breathed life into the Barrons's sound circuits, but Bebe was only interested in the sounds that worked best for her project, discarding all the other sounds the circuit produced during its short lifespan. Yet when Louis and Bebe Barron speak about the organic qualities of their sound machines, personifying what some might consider simple electronics, they engage in a discussion with Wiener's warnings about the proper use of cyborgs. As we have seen, technological development enabled the type of creativity that the Barrons brought to *Forbidden Planet*'s soundworld, though it engenders its own set of colonialist complications, many of which already existed in science fiction.

Interstellar Soundworlds

The Barrons' soundtrack marked a dramatic and lasting shift away from orchestral scoring for alien environments, even if their labor-intensive cybernetic compositional style did not survive beyond the 1950s. While the Barrons helped cement the association between outer space and electronic music, their compositional choices also complicate our understanding of what electronic music means. As we have seen, *Forbidden Planet,* through its story and its soundtrack, completely obfuscates the binary oppositions between human and non-human,

[170] A more direct representation of the slavery between Prospero and Caliban appears in the 1969 play *A Tempest* by Aimé Césaire, in which Césaire presents Caliban as a black slave and Prospero as a white slaver, heightening the abusive relationship between these characters and inviting the viewers to reimagine Prospero and Caliban through a postcolonial lens.

Earth, and non-Earth. The use of cybernetics to create sound machines troubles anyone listening for such binaries, since machines, technology, and perhaps alien life, cross over into the human realm, and humans blur the boundaries between terrestrial and extraterrestrial environments.

Whether embodied in the spaceship or in cybernetic sound machines, technology proves to be the linchpin for understanding the complex relationship between science fiction and landscape as they relate to postcolonial conquest. *Forbidden Planet* exemplifies this in its ambivalent attitude toward technology as a constructive and destructive force. The contrast between the artificially abundant garden and the naturally barren surrounding environment emphasizes how technology and human expansion could bring life to an otherwise uncultivated landscape, even as it reinforced gender stereotypes that separate the domestic and "feminine" garden, ripe for conquest, from the masculine conflicts of the outside world. By naming his daughter Altaira after planet Altair IV, Dr. Morbius reveals his own ego and his presumptive position as the "father" of a planet that is destroyed by the dark side of his scientific ambitions. Music also mirrored technological development in its own way, dismantling the hegemony of the Hollywood orchestra and the value of the human musician, and problematizing the relationship between cyborg robots and their human controllers, while also creating a new set of sounds to accompany the human departures from Earth, and establishing sonic signatures for new landscapes and beings, both organic and mechanized. As we will see in the next chapter, while the Barrons's groundbreaking score attracted great attention and contemporary appreciation, such a score was quite rare in Hollywood, and the pervasive use of electronics in sci-fi film scores inevitably sparked an acoustic response in the following decade.

Chapter Three: Jerry Goldsmith Goes to Space

In memory of Randy and Gene Bostic

Introduction

During the 1960s, the world of Hollywood fluctuated tremendously, and the industry was showing some worrying signs. Film studios struggled as audience numbers declined, resulting in a sharp reduction in the total number of films produced in the 1960s and 1970s—down to 140 and 80, respectively, from over 300 in the 1950s.[171] The 1960s and 1970s were difficult decades: The United States came to grips with its racist past through the Civil Rights Movement and witnessed the assassinations of Martin Luther King, Jr. and President John F. Kennedy. It also saw the Vietnam War and the draft, which brought with it the birth of the pro-peace, free-loving, psychedelic, and anti-establishment Hippies. There are many historical markers that might have influenced Hollywood and the film industry in general with respect to the subject of science fiction films, but in this chapter, I consider how shifts in narrative design and film composition coincided with the developments of the American Space Program in the face of the Cold War.

Science fiction films of the 1950s promised adventure and discovery: they presented outer space as a marvelous destination, ripe for exploration and loaded with potential for both commercial gain and for the future settlement of humankind. This romanticized, idyllic perspective on outer space is rooted in the early 1950s, when significant advances in aviation

[171] Julie Hubbert, *Celluloid Symphonies: Texts and Contexts in Film Music History* (Berkeley: University of California Press, 2011). 258.

technology inspired Americans to imagine exploring a world beyond their own. The films that premiered during this optimistic era sought to build upon those desires with fantastic spaceships and picturesque landscapes, combined with soundtracks that echoed the music that had been used to represent the American frontier: lush and consonant harmonies, played by a large, conventional orchestra, spotlighting a single electronic instrument, the theremin, used by Bernard Herrmann in *The Day the Earth Stood Still* and Ferde Grofé in *Rocketship XM*, to evoke the strangeness of outer space. At the end of the 1950s, however, films dramatically changed their narrative tenor. Instead of portraying outer space as an environment for opportunity and expansion, films of the late 1950s and 1960s focused on the potential dangers and threats that lurked throughout the universe—a shift that mirrored contentious developments in the Space Race.

The space exploration efforts of the 1950s were almost entirely driven by the International Geophysical Year (IGY), an international science project bringing together the efforts of sixty-seven countries, including the United States and the Soviet Union. The goal of the project, which was announced in 1952 and lasted from July 1957 to December 1958 (the dates were chosen for maximum solar activity), was to advance Earth sciences such as geomagnetism, gravity, precision mapping by latitude and longitude, solar activity, and oceanography.[172] To contribute to this major scientific effort, the United States pledged to send several artificial satellites into outer space during the IGY, partnering with major engineering and military groups to pull off this incredible feat. Overall, the IGY was quite successful, and yielded some valuable discoveries, such as plate tectonics in the Atlantic Ocean and the eventual

[172] Sarah Everts, "Information Overload," Science History Institute, July 25, 2016, https://www.sciencehistory.org/distillations/information-overload.

development of the Antarctic Treaty. The IGY was an ecological venture from the outset, harnessing new technologies to gain an enhanced, global understanding of our environment here on Earth. Technology, in this case, benefitted Earth's various ecologies by increasing our knowledge of the planet and helping us understand how to protect it for the future. However, tensions grew as the Soviet Union became the first to successfully place an artificial satellite in outer space. On October 4, 1957, just months into the IGY, Sputnik 1 was launched into orbit, damaging the reputation and leadership of NASA and its first satellite program, Project Vanguard, which had suffered numerous failures.[173] This consequential event soured the IGY from a cooperative global effort, focused on ecological intelligence, to an opportunity for conquest and ecological domination through militaristic force.

The U.S. responded to the Soviet Union's satellite success by expanding their National Advisory Committee for Aeronautics (NACA) into the National Aeronautics and Space Administration, basing future outer space explorations on existing military technologies. NACA had been in existence since World War I and served as the primary flight technology developer for the United States through the 1950s. NACA's aviation research had a large impact on military flight during World War II; it redesigned the engines on B-17 Flying Fortresses, which allowed them to fly at full power at high altitudes. NACA also contributed to the development of the Bell X-1 aircraft, the first American aircraft to fly at supersonic speeds. On November 21, 1957, NACA director Hugh Dryden announced a Special Committee on Space Technology, which brought together branches of the federal government, private industries, and research

[173] U.S. Naval Research Laboratory. "Vanguard Project," June 25, 2019. https://www.nrl.navy.mil/accomplishments/rockets/vanguard-project.

universities with the goal of establishing a space program for the United States. The agency changed in 1958 following a letter written by James Killian to President Dwight D. Eisenhower, which asked the President to expand NACA into a civil space program.

The new title of the agency, the National Aeronautics and Space Administration (NASA), recognized its new role to extend technological advancements in aeronautics into outer space. NASA came into existence primarily to serve the needs of society and science (a "civil" space program), but because of the increased tensions between the U.S. and the Soviet Union in outer space exploration, the Space Race became a competitive effort that sought to put American efforts ahead of the Soviet attempts. This technological one-upmanship further strained international relations in the following decades, with each country fearing that the other was using their advanced flight technologies to spy on each other or to coordinate nuclear attacks. It was this paradigm shift, from peaceful technology used to benefit ecological interests to a Space Race aimed at militaristic conquest, that I argue influenced Hollywood's perspective on outer space, making it a more combative and politically charged environment.

The subsequent two decades introduced American audiences to new, fantastic settings and extraterrestrials, both friend and foe (though mostly foe), accompanied by ingenious and trailblazing compositional approaches quite different from the electronic scores of the previous decade. Jerry Goldsmith, one of the most venerated film composers of the 1960s and 1970s, scored two successful and innovative films during this new era of sci-fi cinema: *Planet of the Apes* (1968) and *Alien* (1979). In this chapter, I show how Goldsmith used creative instrumentation and unfamiliar timbres, dissonance, and serialism to create two distinctly different sonic impressions of outer space as disorienting and dangerous. In *Planet of the Apes*, I show how the instrumentation works to represent several of the major themes of the film, such as the

purposeful confusion between primitivism and a technologically advanced future. I further argue that Goldsmith's use of serialism functions as an allegorical tool, with prime rows paired with inversions to represent the astronauts' misperception of the so-called alien planet, as well as its upended hierarchy of human and non-human characters. In *Alien*, Goldsmith works within the New Hollywood sound, defined by Frank Lehman and others, but remains firmly avant-garde—director Ridley Scott's preference—using augmented fourths, major sevenths, and dense cluster chords to echo *Alien*'s menacing setting. I show how Scott reshaped Goldsmith's original score, adding music not originally composed for *Alien* to match his own horrifying vision of outer space. Examining these two iconic film scores allows us to understand Goldsmith's compositional approach across two decades of film music history.

I synthesize my interpretations of these films by considering their genre precedents, which underlie the relationship between the characters, both human and nonhuman, and their galactic environments. Science fiction has always been somewhat of a *potpourri* of genres, mixing elements from psychological thrillers, horror, war films, and westerns. Recall that the sci-fi films of the previous decade, *Rocketship XM, Destination Moon,* and *The Day the Earth Stood Still* portrayed an insatiable appetite for exploration and conquest, drawing direct comparisons with the America's so-called Manifest Destiny and westward expansion during the 19th century. It is obvious that *Alien* emphasizes horror and violence, while *Planet* aligns itself with psychological thrillers—a genre that was quite familiar to Goldsmith through his work on the film *Freud* in 1962. I also analyze both films' quasi-pastoral characteristics, identifying a science fiction pastoral, driven by technology. I examine how several traditional pastoral elements, such as echo, repetition, quartal and quintal harmonies, and a reliance on woodwind instruments, are

repurposed to create a less stable and safe pastoral environment, reflecting the desolate, open landscapes found in both *Planet of the Apes* and *Alien*.

Who was Jerry Goldsmith?

> *"Don't call me a 'film composer.' I'm just a composer. You don't refer to Mozart as an 'opera' composer."*[174] *– Jerry Goldsmith*

Jerry (Jerrald) Goldsmith (1929 – 2004) was born in Los Angeles, California to parents who were both non-musicians: his mother, Tessa, was a kindergarten teacher and his father, Morris, was a structural engineer. Goldsmith himself, by contrast, was quite musical. He was playing the piano from the age of six and took his music studies seriously as a teenager. Jerry's talents were nurtured by his parents, who enabled him to take piano instruction from Jakob Gimpel, the famous Polish pianist, and a familiar face around the Goldsmith household.[175] His fascination with film music and composition led him to the University of Southern California, where he studied film music (not as an enrolled student) with Miklós Rózsa, who composed scores for the films *Spellbound* (1945) and *Ben-Hur* (1959). However, Goldsmith much preferred the pedagogical approach of his next composition instructor, the Italian composer Mario Castelnuovo-Tedesco (who also taught Andre Previn and John Williams), commenting that Rózsa was "a terrible teacher," whose classes primarily consisted of stories about the music he wrote. Rózsa's scores were one of the early influences on Goldsmith's desire to compose for

[174] Carrie Goldsmith, "Deconstructing Dad: The Unfinished Life and Times of Jerry Goldsmith," Jerry Goldsmith Online, 2008, http://www.jerrygoldsmithonline.com/spotlight_biography_preview.htm.
[175] Goldsmith. The young Jerry went to go see Gimpel perform with the LA Phil, with Gimpel playing Rachmaninoff's Second Piano Concerto. Goldsmith was apparently awestruck by his performance, and upon finding Gimpel's ad in the newspaper for new students, he showed his parents immediately. Gimpel, a Jewish refugee, fled Eastern Europe in the late 1930s, arriving in New York in 1938 before moving to Los Angeles in 1943. Carrie mentions that Gimpel was often referred to around the Goldsmith household as "Uncle Kuba." He was a frequent dinner guest and his renown as a concert pianist never intimidated anyone in the family. Gimpel was quite the pivotal teacher for Goldsmith and stimulated his performance far more than his previous instructors had.

films, but Rózsa's superficial pedagogy lacked the technical training that Goldsmith sought. For the teenage Goldsmith, Castelnuovo-Tedesco was an ideal mentor for making connections in Hollywood, and in conversations with his daughter, Carrie, he called Castelnuovo-Tedesco the "teacher *du jour* in Hollywood."[176] Unfortunately, Castelnuovo-Tedesco was not the ideal teacher in the eyes of Goldsmith's parents. Goldsmith's mother threatened to stop paying for his lessons because Castelnuovo-Tedesco smoked four packs of unfiltered cigarettes a day, which eventually caused Goldsmith to pick up the habit.[177]As Goldsmith reached college age, he carefully considered his options in the Los Angeles area, and rejected continued education at USC, which he said would be a "waste of time," in favor of Los Angeles City College, where he could continue to study privately with Castelnuovo-Tedesco.[178] While at LACC, Goldsmith engaged yet another teacher, Ernst Krenek, whom he valued mostly because he was much more modern than Castelnuovo-Tedesco, who was steeped in the romantic and impressionistic styles.[179] Additionally, Goldsmith studied with Wolfgang Frankel, a pupil of Arnold Schoenberg, at some points in his professional career, even working as the copyist for his scores.[180]

After completing his studies at LACC, Goldsmith tried to find his way in the film composition world, starting as a typist for CBS in 1950. In this position, he was given several composition opportunities for live radio shows, including *Romance* (half-hour shows that

[176] Goldsmith.
[177] Goldsmith.
[178] Goldsmith. The program at USC would have forced Goldsmith to take elementary courses in composition, which he was not thrilled about, stating that he had been taking composition lessons since he was 14 years old.
[179] Goldsmith. While Jerry greatly valued Krenek's instruction, especially because of his modernist style, Carrie suggests that Jerry was agitated by Krenek's appearance. She quotes him saying that "[Krenek] was a very good composer, but he was bald, and he never wore socks. I know it's cool now, but in 1948, it looked like poverty. It seemed dirty."
[180] Lesley Valdes, "Longtime Film Composer Relishes Chance to Stretch Out," *The Philadelphia Inquirer*, March 30, 1997.

highlighted movie stars' careers), and the *CBS Radio Workshop* (a drama series that revived older experimental radio shows from Columbia and CBS).[181] He slowly worked his way up through CBS, taking occasional supervisor roles and replacing higher-ups who were on leave for various reasons, and scoring some major productions along the way. Goldsmith was eventually promoted to live television and composed for *Climax* and *Playhouse 90*. By this point, Goldsmith had secured his role within CBS as a composer and found himself writing for *The Twilight Zone,* for which he composed several episodes during the first season (1959) until his wholesale departure from CBS the following year.

His next move brought him to Universal Studios (Revue Studios at the time)[182] where he continued to write for television dramas, composing for *Thriller, Dr. Kildare,* and *The Man from U.N.C.L.E.* Goldsmith finally got his first cinematic credit in 1957, with his score for the Western film *Black Patch*. In 1961, Goldsmith met the influential music director and composer Alfred Newman (1900 – 1970), while Newman was working on *Flower Drum Song* (1961) with Universal. Laurence MacDonald considers Newman to be one of the "godfathers" of film music, along with Dimitri Tiomkin and Max Steiner.[183] Newman was well-connected in many Hollywood studios dating back to the late 1930s and had credits for over 200 films, including many as an influential music director later in his lifetime. He admired Goldsmith's television work and was instrumental for Goldsmith's "big break" in Hollywood, convincing the producers

[181] "Jerry Goldsmith Online Biography." Accessed February 24, 2020. http://www.jerrygoldsmithonline.com/biography.htm. The CBS Radio Workshop featured many notable composers, including two that are featured in this dissertation, Leith Stevens and Bernard Herrmann. Goldsmith further noted that CBS gave everyone the chance to create their own radio show, which was then circulated around to the producers. This resulted in many talented folks emerging from secretary desks and the mailroom. He mentioned that many people got their start this way.

[182] After several mergers and name changes, Revue Studios became Universal Television in 1963.

[183] MacDonald, *The Invisible Art of Film Music: A Comprehensive History*: 35.

of *Lonely Are the Brave* to hire Goldsmith as the composer.[184] Goldsmith's fruitful stint at Universal also included his first Academy Award nomination for Best Score for his serialist contribution to *Freud* in 1962.

Goldsmith most likely encountered Newman often in his numerous Hollywood circles, but, unbeknownst to Goldsmith at the time, they were connected decades earlier through Castelnuovo-Tedesco. Castelnuovo-Tedesco taught many composition students in Los Angeles at the time. Alfred Newman's younger brother, Lionel, was also scheduled to take lessons with Castelnuovo-Tedesco, but apparently often skipped these lessons to go play golf. Castelnuovo-Tedesco offered for Goldsmith to take Lionel's time, meaning that Newman's family was paying for Goldsmith's composition lessons.[185] Meeting Newman was a turning point in Goldsmith's film music career and helped him reach the forefront of Hollywood during the 1960s and 1970s. By the end of the decade, Goldsmith was scoring for major films like *Lilies of the Field, Patton, The Sand Pebbles,* and *A Patch of Blue*, the last three of which earned Best Musical Score Oscar nominations.

Table 1: Jerry Goldsmith's film soundtrack Credits from 1962 to 2004 (https://www.imdb.com/name/nm0000025/?ref_=fn_al_nm_1). The asterisk (*) indicates a film that is referenced directly in this chapter and dissertation. The cross (†) indicates a film score that was nominated for an Oscar.

Title	Date	Company Credits	Genre
Lonely Are the Brave	May 25, 1962	Universal	Drama, Western
The Crimebusters	May 19, 1962	Metro-Goldwyn-Mayer (MGM)	Crime, Drama
The Spiral Road	November 23, 1962	Universal	Adventure, Drama, Romance
Freud*†	December 12, 1962	Universal	Biography, Drama
The List of Adrian Messenger	May 29, 1963	Universal	Mystery, Thriller

[184] Goldsmith, "Deconstructing Dad."
[185] Goldsmith.

The Stripper	June 14, 1963	Twentieth Century Fox	Drama, Romance
A Gathering of Eagles	June 21, 1963	Universal	Drama, Romance, War
Lilies of the Field	July 5, 1963	United Artists	Drama
Take Her, She's Mine	November 13, 1963	Twentieth Century Fox	Comedy
The Prize	December 25, 1963	MGM	Crime, Drama, Mystery
Seven Days in May	February 13, 1964	Paramount	Drama, Thriller
Shock Treatment	August 6, 1964	Twentieth Century Fox	Drama, Mystery, Thriller
Fate is the Hunter	October 16, 1964	Twentieth Century Fox	Drama, Mystery, Thriller
Rio Conchos	1964	Twentieth Century Fox	Action, Drama, War
To Trap a Spy	1964	MGM	Comedy, Adventure, Drama
The Satan Bug	March 16, 1965	United Artists	Crime, Mystery, Sci-Fi
In Harm's Way	April 6, 1965	Paramount	Drama, War
Von Ryan's Express	June 23, 1965	Twentieth Century Fox	Action, Adventure, War
Morituri	September 1965	Twentieth Century Fox	Action, Drama, Thriller
A Patch of Blue†	December 10, 1965	MGM	Drama, Romance
Our Man Flint	January 16, 1966	Twentieth Century Fox	Action, Adventure, Comedy
The Trouble with Angels	March 30, 1966	Columbia	Comedy, Family
Stagecoach	June 15, 1966	Twentieth Century Fox	Action, Adventure, Western
Seconds	October 2, 1966	Paramount	Sci-Fi, Thriller
The Blue Max	June 21, 1966	Twentieth Century Fox	Action, Drama, Romance
The Sand Pebbles†	December 20, 1966	Twentieth Century Fox	Adventure, Drama, Romance
Warning Shot	January 18, 1967	Paramount	Crime, Mystery, Thriller
In Like Flint	March 15, 1967	Twentieth Century Fox	Action, Adventure, Comedy
The Flim-Flam Man	September 21, 1967	Twentieth Century Fox	Action, Comedy, Crime
Hour of the Gun	1967	United Artists	Western

Sebastian	January 29, 1969	Paramount	Drama, Romance
Planet of the Apes†*	April 3, 1968	Twentieth Century Fox	Adventure, Sci-Fi
The Detective	May 28, 1968	Twentieth Century Fox	Crime, Drama, Thriller
Bandolero!	June 1, 1968	Twentieth Century Fox	Action, Crime, Drama
The Illustrated Man	March 26, 1969	Warner Bros.	Drama, Fantasy, Horror
100 Rifles	March 26, 1969	Twentieth Century Fox	Adventure, Romance, War
The Chairman	July 1969	Twentieth Century Fox	Action, Drama, Thriller
Justine	August 6, 1969	Twentieth Century Fox	Drama, Mystery, Romance
Patton†	April 2, 1970	Twentieth Century Fox	Biography, Drama, War
The Ballad of Cable Hogue	March 18, 1970	Warner Bros.	Comedy, Drama, Romance
Tora! Tora! Tora!	September 23, 1970	Twentieth Century Fox	Action, Drama, History
The Traveling Executioner	June 23, 1972	MGM	Comedy, Drama, Western
Rio Lobo	December 18, 1970	National General	Adventure, Romance, War
The Mephisto Waltz	June 11, 1971	Twentieth Century Fox	Horror, Mystery, Thriller
*Escape from Planet of the Apes**	July 9, 1971	Twentieth Century Fox	Action, Sci-Fi
Wild Rovers	June 19, 1971	MGM	Western
The Last Run	September 24, 1971	MGM	Action, Drama, Crime
The Other	May 26, 1972	Twentieth Century Fox	Drama, Horror, Mystery
The Man	July 19, 1972	Paramount	Drama
Shamus	February 1, 1973	Columbia	Action, Comedy, Crime
Ace Eli and Rodger of the Skies	April 1, 1973	Twentieth Century Fox	Drama
One Little Indian	June 20, 1973	Walt Disney	Comedy, Family, Western
The Don is Dead	November 14, 1973	Universal	Action, Crime, Drama

Papillon†	December 19, 1973	Allied Artists	Biography, Crime, Drama
Chinatown†	June 20, 1974	Paramount	Drama, Mystery, Thriller
*S*P*Y*S*	September 5, 1974	Twentieth Century Fox	Action, Comedy
The Terrorists	February 27, 1975	Twentieth Century Fox	Crime, Drama, Thriller
Breakout	March 7, 1975	Columbia	Action, Adventure, Drama
The Reincarnation of Peter Proud	September 18, 1975	American International	Horror, Mystery
The Wind and the Lion+	June 26, 1975	MGM	Action, Adventure, Drama
Take a Hard Ride	October 29, 1975	Twentieth Century Fox	Western
Breakheart Pass	December 25, 1975	United Artists	Mystery, Western
The Last Hard Men	June 1, 1976	Twentieth Century Fox	Western
Logan's Run	June 23, 1976	MGM	Action, Sci-Fi
The Omen+*	June 15, 1976	Twentieth Century Fox	Horror
High Velocity	September 1976	First Asian Films of California	Action, Drama
The Cassandra Crossing	February 9, 1977	ITC Entertainment	Drama, Thriller
Islands in the Stream	July 1977	Paramount	Drama
MacArthur	July 15, 1977	Universal	Biography, Drama, History
Damnation Alley	October 21, 1977	Twentieth Century Fox	Sci-Fi
*Capricorn One**	June 2, 1978	ITC Entertainment	Action, Adventure, Drama
Coma	January 6, 1978	MGM	Drama, Horror, Mystery
Damien: Omen II	June 9, 1978	Twentieth Century Fox	Horror
The Swarm	July 14, 1978	Warner Bros.	Horror, Thriller
The Boys from Brazil†	October 6, 1978	ITC Entertainment	Drama, Mystery, Thriller
Magic	November 8, 1978	Twentieth Century Fox	Drama, Horror
The Great Train Robbery	February 2, 1979	United Artists	Adventure, Crime, Drama

Alien†*	June 22, 1979	Twentieth Century Fox	Horror, Sci-Fi
Players	June 19, 1979	Paramount	Drama, Romance, Sport
Star Trek: The Motion Picture†*	December 8, 1979	Paramount	Adventure, Mystery, Sci-Fi
Cabo Blanco	February 1, 1981	Cabo Blanco Production Inc.	Action, Adventure, Crime
The Final Conflict	March 20, 1981	Twentieth Century Fox	Horror
Inchon	September 17, 1982	MGM	Drama, History, War
Outland	May 22, 1981	Warner Bros.	Action, Crime, Sci-Fi
Raggedy Man	September 18, 1981	Universal	Drama
The Salamander	May 23, 1983	ITC Entertainment	Thriller
Night Crossing	February 5, 1982	Walt Disney	Drama, Family, History
Poltergeist†	June 4, 1982	MGM	Horror, Thriller
The Secret of NIMH	July 16, 1982	MGM/United Artists	Animation, Adventure, Drama
The Challenge	July 23, 1982	CBS Theatrical Films	Action, Drama
First Blood	October 22, 1982	Anabasis Investments, N.V.	Action, Adventure
Psycho II	June 3, 1983	Universal	Crime, Horror, Mystery
Twilight Zone: The Movie	June 24, 1983	Warner Bros.	Horror, Sci-Fi
Under Fire†	October 21, 1983	Lion's Gate	Drama, War
The Lonely Guy	January 27, 1984	Universal	Comedy, Romance
Supergirl	November 21, 1984	Warner Bros.	Action, Adventure, Fantasy
Runaway	December 14, 1984	TriStar	Action, Crime, Sci-Fi
Rambo: First Blood Part II	May 22, 1985	Anabasis N.V.	Action, Adventure, Thriller
King Solomon's Mines	November 22, 1975	Cannon Group	Action, Adventure, Comedy
Link	September 19, 1986	Cannon Screen Entertainment	Horror
Poltergeist II: The Other Side	May 23, 1986	MGM	Horror
Hoosiers†	February 27, 1987	Hemdale Pictures	Drama, Sport
Extreme Prejudice	April 24, 1987	Carolco Pictures	Action, Crime, Drama

Innerspace	July 1, 1987	Warner Bros.	Action, Adventure, Comedy
Lionheart	August 14, 1987	Hungaro	Adventure, Drama
Rent-A-Cop	January 15, 1988	Kings Road Entertainment	Action, Comedy, Crime
Rambo III	May 25, 1988	Carolco Pictures	Action, Adventure
Criminal Law	April 28, 1989	Hemdale	Crime, Drama, Thriller
The 'Burbs	February 17, 1989	Paramount	Comedy, Mystery, Thriller
Leviathan	March 17, 1989	MGM	Adventure, Horror, Mystery
Warlock	January 11, 1991	New World Pictures	Action, Fantasy, Horror
Star Trek V: The Final Frontier	June 9, 1989	Paramount	Action, Adventure, Fantasy, Sci-Fi, Thriller
Total Recall	June 1, 1990	Carolco	Action, Sci-Fi, Thriller
The Russia House	December 21, 1990	MGM	Drama, Romance, Thriller
Sleeping with the Enemy	February 8, 1991	Twentieth Century Fox	Drama, Thriller
Basic Instinct†	March 20, 1992	Carolco	Drama, Mystery, Thriller
Mom and Dad Save the World	July 24, 1992	HBO	Adventure, Comedy, Family
Mr. Baseball	October 2, 1992	Universal	Comedy, Romance, Sport
Love Field	February 12, 1993	Orion Pictures	Drama
Forever Young	December 16, 1992	Warner Bros.	Drama, Romance, Sci-Fi
Matinee	January 29, 1993	Universal	Comedy, Drama
The Vanishing	February 5, 1993	Twentieth Century Fox	Drama, Horror, Mystery
Dennis the Menace	June 25, 1993	Warner Bros.	Comedy, Family
Rudy	October 23, 1993	TriStar	Biography, Drama, Sport
Malice	October 1, 1993	Castle Rock Entertainment	Crime, Mystery, Thriller
Six Degrees of Separation	December 8, 1993	MGM	Comedy, Drama, Mystery
Angie	March 4, 1994	Caravan Pictures	Comedy, Drama, Romance

Bad Girls	April 22, 1994	Twentieth Century Fox	Action, Adventure, Romance
I.Q.	December 25, 1994	Paramount	Comedy, Romance
Congo	June 9, 1995	Paramount	Action, Adventure, Mystery
First Knight	July 7, 1995	Columbia	Action, Adventure, Drama
Powder	October 27, 1995	Caravan Pictures	Drama, Fantasy, Mystery
City Hall	February 16, 1996	Castle Rock Entertainment	Drama, Thriller
Executive Decision	March 15, 1996	Warner Bros.	Action, Adventure, Thriller
Chain Reaction	August 2, 1996	Twentieth Century Fox	Action, Drama, Sci-Fi
The Ghost and the Darkness	October 11, 1996	Constellation Entertainment	Adventure, Drama, Thriller
Star Trek: First Contact	November 22, 1996	Paramount	Action, Adventure, Drama, Sci-Fi, Thriller
Fierce Creatures	January 24, 1997	Universal	Comedy
L.A. Confidential†	September 19, 1997	Warner Bros.	Crime, Drama, Mystery
Air Force One	July 25, 1997	Columbia	Action, Drama, Thriller
The Edge	September 26, 1997	Art Linson Productions	Action, Adventure, Drama
Deep Rising	January 30, 1998	Calimari Productions	Action, Adventure, Horror
U.S. Marshalls	March 6, 1998	Warner Bros.	Action, Crime, Thriller
Mulan+	June 19, 1998	Walt Disney	Animation, Adventure, Family
Small Soldiers	July 10, 1998	Universal	Action, Adventure, Comedy
Star Trek: Insurrection	December 11, 1998	Paramount	Action, Adventure, Sci-Fi
The Mummy	May 7, 1999	Universal	Action, Adventure, Fantasy
The Haunting	July 23, 1999	Dreamworks	Fantasy, Horror, Mystery
The 13th Warrior	August 27, 1999	Touchstone Pictures	Action, Adventure, History

Hollow Man	August 4, 2000	Columbia	Action, Horror, Sci-Fi
Along Came a Spider	April 6, 2001	Paramount	Drama, Thriller
The Last Castle	October 19, 2001	Dreamworks	Action, Drama, Thriller
The Sum of All Fears	May 31, 2002	Paramount	Action, Drama, Thriller
Star Trek: Nemesis	December 13, 2002	Paramount	Action, Adventure, Sci-Fi
Star Trek: Incident at Beta 9	2002	Up All Night Productions	Sci-Fi
Star Trek: The Final Darkness	2004	Up All Night Productions	Sci-Fi

Jerry Goldsmith's Planet of the Apes

Planet of the Apes, widely regarded by critics of the time and of today as one of Goldsmith's greatest scores, stands out during the 1960s as Goldsmith's only outer space film. Despite this being his first outer space film, sci-fi was a comfortable genre for Goldsmith by the late 1960s, as he had composed music for several sci-fi television series while he was employed by CBS in the late 1950s, including *The Twilight Zone*. Working on *Planet* also brought Goldsmith back into contact with many of the people whom he worked with on *The Twilight Zone,* including the celebrated screenwriter, Rod (Rodman Edward) Serling.

Serling worked closely with his co-screenwriter Michael Wilson in adapting the *Planet of the Apes* novel to film, and together they engineered several adjustments to *Planet*'s narrative, especially its ending, that maximized its cinematic efficacy. The story of *The Planet of the Apes* comes from the French novelist, Pierre Boulle, who published it in 1963 under the title, *La Planète des singes*.[186] Boulle's novel, a frame story told through a manuscript read by two civilized

[186] *Planet of the Apes* in the US and *Monkey Planet* in the UK.

chimpanzees, Jinn and Phyllis, describes a group of scientists, Professor Antelle and Arthur Levain, accompanied by journalist Ulysse Mérou, who arrive on planet orbiting the star Betelgeuse, the right hand of the Orion constellation. When they arrive on the planet they call "Soror," they notice they can breathe, drink the water, and eat the fruit from the plants. The group soon discovers that on this planet, apes are the dominant, intelligent species, who have enslaved savage, mute humans. Before becoming enslaved like the other primitive humans, Ulysse and his new primitive mate, Nova, devise a plan to escape by acting as space-flight test subjects. They successfully return to their original spaceship, and they set it to fly back to Earth. Boulle's novel has a twist ending, however. When they arrive on the Earth, they are met by an army officer who is a gorilla. Jinn and Phyllis, whose chimpanzee identity is revealed only at the end of the narrative, disregard the manuscript, written by Ulysse, because they do not believe in such a thing as intelligent human beings.

Serling was the principal screenwriter for the film and was given all creative control by producer Arthur Jacobs, who purchased the movie rights to Boulle's novel just before it was published.[187] Serling and Wilson kept the English title *Planet of the Apes*, and much of the screenplay remains true to the novel. Serling and Jacobs are responsible for the shocking reveal at the end of the film, however, which differs from Boulle's ending. Film music scholar John O'Callaghan describes the birth of the new ending:

> Just nine days later, with Serling vacationing in Italy, the *concept* ending that made *Planet of the Apes* turn out to be the Earth after all appeared on the last page of a May 6, 1964, memo Jacobs send to Edwards with an underlined heading: "New Ending." Jacobs placed the startling revelation in Cornelius' archaeological dig

[187] John O'Callaghan, *Simians and Serialism: A History and Analysis of Jerry Goldsmith's Score to Planet of the Apes*, Second Edition (Goodyear, Arizona: Pithikos Entertainment, 2019). 11.

> with a one-line description: "Zaius then tells Thomas that the civilization they have dug up is known as—Earth."[188]

This ending propelled *Planet of the Apes* to become one of the most beloved science fiction films of the period.[189] The startling ending is clever and builds upon one of the main goals of the screenplay, as the audience's beliefs about the setting are kept constantly in limbo until the closing scenes of the film. Serling's rewriting was more practical for Hollywood, while Boulle's dramatic ending, confusing the appearance of apes and humans, would have been difficult to replicate on screen.

Like most science fiction of the day, Boulle's story was deeper than the superficial shock of apes overtaking humans as the dominant and intelligent species. O'Callaghan writes that Boulle "used science fiction as a clever way to illustrate some of the troubling and challenging sociopolitical issues of the day."[190] O'Callaghan touches on one of the hallmark strengths of science fiction literature: its unique ability to provide social and political critique that is softened through allegory. While O'Callaghan praised Boulle's novel for commenting on so many issues, John Mahoney, a reviewer for the *Hollywood Reporter,* found that the "crowding of allegorical meanings" was one of the film's greatest weaknesses: "race relations, war and pacifism, church inquisition, senate investigation and the suppression of thought, sexual myth, the credibility gap in official statements or position, myopic justice, the selective deductive process of historians, the generation gap, blind allegiance to the status quo, the imperative right of dissent, social structure and the caste system."[191] Focusing on the ecological elements of Goldsmith's scores and the films,

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[188] O'Callaghan. 13.
[189] John Wills wrote, "Thanks to Serling, the movie featured one of the best surprise endings in cinematic history."
[190] O'Callaghan, *Simians and Serialism*. 10.
[191] John Mahoney, "'Planet of the Apes': THR's 1968 Review," The Hollywood Reporter, February 5, 1968, https://www.hollywoodreporter.com/review/planet-apes-1968-review-i-original-movie-973869.

I analyze the relationship between humans and the surrounding environment, showing how larger Cold War narratives shaped human anxieties about contact across borders and about our species' capacity to negatively impact our environments.

Director Franklin Schaffner's *Planet of the Apes* begins with a view of a lone spaceship traveling through open space. We are first introduced to the captain, and the protagonist of the drama, Colonel George Taylor (played by Charlton Heston), who is wrapping up a journal entry before descending into a hibernation chamber with the rest of his crew: Landon, Dodge, and the lone woman, Stewart. After Taylor enters hibernation, the ship crash-lands into a lake on an unknown planet. The crewmembers quickly gather some tools and supplies and exit the ship, but not before realizing that Stewart died during their hibernation. As Taylor, Landon, and Dodge exit the ship, Taylor looks back at the dashboard of the spaceship and sees the year: 3978. The crew had been hibernating for more than two millennia.

After the crew hikes their way through a brutal desert landscape, resting briefly for a swim at an oasis, they encounter a large group of humanoids who are mute and unintelligent. Suddenly, the whole crowd finds themselves hunted by a group of armed apes on horseback. The humans, including Taylor, are apprehended, and taken to the ape village, where Taylor is put into a jail cell near a laboratory. Taylor constantly struggles against the apes while in captivity before eventually communicating with the scientists observing him: Cornelius and Dr. Zira. Over time, Dr. Zira and Taylor devise a plan to sneak Taylor out to the forbidden zone, where they will uncover the truth about the planet they are living on, exposing the scientific evidence long suppressed by the totalitarian leader, Dr. Zaius. Within the forbidden zone is an archaeological dig site within a cave, where Cornelius and Dr. Zira show Taylor artifacts from a previous human race that lived many hundreds of years ago. Dr. Zaius admits to concealing

evidence of a past civilization with advanced technology and Taylor, confused and unsure who is telling the truth, flees on horseback with his partner, Nova, a female subhuman.[192] They ride off into the distance before arriving at a half-buried Statue of Liberty in the beach sands. Taylor stares up toward statue, with waves crashing over his feet, and realizes "I'm back… I'm home." He falls to his hands and knees, lamenting the truth of his current situation: "We finally, really did it." "You maniacs!" he cries out. "You blew it up! Damn you! God, damn you all to hell!"

Planet's fascinating narrative, expertly crafted costumes, eye-catching scenery, and striking cinematography, proved to be a successful combination, drawing in over $32 million in worldwide box office sales and receiving favorable critical acclaim.[193] Many critics celebrated the cinematography and costume design, calling them the most advanced and realistic of any science fiction film of the time. All the impressive camera shots in remote locations, highly detailed set designs, and elaborate costumes added up, however, in terms of cost. According to Richard Gertner of *Motion Picture Daily*, Twentieth Century Fox paid $5.8 million to produce *Planet*, making it one of the most expensive science fiction films Hollywood had seen in years, perhaps the most expensive science fiction film to date.[194] Outside of the visual elements, many film scholars cite Goldsmith's score as a major highlight of the movie. Critics described its effectiveness and how it broke new ground in film composition by embracing innovation and distancing itself from the "standard" film score sound of the prior decade, in John Mahoney's words, by "avoiding electronic cliches," and creating a score that is "at once primordial" and

[192] Taylor and Nova were paired while he was in captivity. Through a pastoral lens, Taylor and Nova are symbols of Adam and Eve, repopulating the Earth with humans following their nuclear destruction.
[193] "Planet of the Apes," Box Office Mojo, accessed March 11, 2020.
[194] Richard Gertner, "Review: Planet of the Apes," *Motion Picture Daily*, 1968, Margaret Herrick Library. 1.

"suggestive of electronics."[195] Returning to an acoustic orchestra, forced Goldsmith to concoct odd but acoustic timbres to depict the unfamiliar landscapes, represent the apes as the "other," and sonically illustrate the juxtaposition of futurism and primitivism that characterizes the film as a whole. Goldsmith's score and *Planet*'s narrative also allow us to see technology as a double-edged sword: though we have unparalleled access to explore worlds beyond our own, we also are capable of weaponizing technology to create world-destroying nuclear bombs.

The Instrumentation and Sounds of *Planet of the Apes*

1960 marked the beginning of a new era, a "turning point in film music history," which Julie Hubbert suggests was marked by "the abandonment of the Romantic orchestra in favor of a variety of instrumentations, including jazz, rock 'n' roll, and avant-garde classical trends like serialism and aleatoric practices."[196] While science fiction scores of the 1950s, and several in the 1960s, relied on electronic instruments and sounds to evoke outer space, Goldsmith opted for an almost entirely acoustic instrumentation, drawing upon conventional orchestration paired with unconventional composition techniques. In an interview with *Cinefantastique* magazine in 1972, Goldsmith spoke about his approach to the score for *Planet of the Apes* and his interactions with director Franklin Schaffner, stating that Schaffner was "very easy to work with" and "probably the only director who really understands music." When asked if Schaffner suggested anything about the score to Goldsmith, he replied that Schaffner "didn't suggest anything." Goldsmith did the suggesting, and Schaffner "did the understanding, knew what I was talking about."[197]

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[195] Mahoney, "'Planet of the Apes.'"
[196] Hubbert, *Celluloid Symphonies*. xi. Hubbert also mentions the long-playing record as an important development for film music during this period, which is pertinent for *Alien* and Goldsmith's LP, as I will explain in the second half of this chapter.
[197] Dale Winogura, "Jerry Goldsmith: Apes 1 and 3," *Cinefantastique*, Summer 1972: 37. Goldsmith and Schaffner's relationship stretches back to their days at CBS when they worked on the popular show *Playhouse 90* in the 1950s.

Later in the *Cinefantastique* interview, Goldsmith stated his goals for the score: "I said it should not be an electronic score, not gimmicky, and wanted to do it with a normal orchestra. I did not want to do the obvious on this."[198] To this day, enthusiasts and critics regard Goldsmith's final product as one of the greatest film scores of all time, citing their satisfaction with his orchestration and idiosyncratic timbres. John Mahoney in the *Hollywood Reporter* wrote that "Goldsmith's score employs unusual instrumentation to achieve effects that are at once primordial, suggestive of electronics, symbolic, and yet still melodic above the undercurrents."[199] Mahoney is picking up on many attributes that were quite unusual for science fiction film scores during this era: Goldsmith's score was *suggestive* of electronics but distinct from the instrumentation and orchestration of the previous decade, which was dominated by truly electronic instruments and sounds. Goldsmith's strong aversion to electronic instruments allowed him to experiment and create novel sounds using a familiar orchestra. The audience assumes it is hearing foreign sounds that match the unfamiliar environment on screen, though this timbral strangeness is simply masking instruments that would be familiar to most viewers, much like the post-apocalyptic appearance of the Earth in the film obscuring its true identity.

In a 1969 interview with the BBC, Jerry Goldsmith said that he wanted to do the score "with an 'old-fashioned' orchestra because it is so capable of doing so many things."[200] Goldsmith creatively tinkered with his old-fashioned orchestra to create sci-fi sound effects, as he did for the *Star Trek* TV series, where he used acoustic timbres to create blaster sounds, the brisk swoosh of

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As it happens, Schaffer and Goldsmith had to arrange for two pianists for the show's live orchestra, one of whom was John Williams. Goldsmith and Schaffer also worked together on the film *The Stripper* (1963).

[198] Winogura.

[199] Mahoney, "'Planet of the Apes.'"

[200] Hubbert, *Celluloid Symphonies,* 305.

automatic doors opening and closing, and a variety of other outer space related sound effects.[201] In *Planet,* on the other hand, Goldsmith rarely uses his timbres as purely sound effect. Goldsmith was clear that he wasn't choosing these timbres just for the sake of their sound, but that they were valuable musically, stating "I made all of these strange sounds with just the orchestra, but I made them musically, which is the important thing."[202] One example of these timbres being used musically is what Goldsmith calls the "swoosh of air," created through a gong scrape and French horns blowing through the instrument with the mouthpiece reversed. Goldsmith uses this "swoosh of air" motivically in "The Searchers," where it is often preceded by a series of timbales strikes.

Listening to the score, one will immediately notice the preeminence of percussion, and some quite unusual percussive timbres in most of the cues. In the *Cinefantastique* interview, Goldsmith was asked if this score featured any unusual instruments. He replied no, stating that he only used unusual instruments in the percussion section, "like stainless steel bowls." Goldsmith's blunt response does not fully capture the breadth of his orchestration, which had strings, woodwinds, and brass, but also included several unconventional additions, such as the electric harp, Echoplex, and an extensive and eccentric percussion section.[203] Goldsmith's percussionist, Emil Richards, was the driving force behind a lot of these "strange sounds," and based on Goldsmith's *laissez-faire* relationship with Richards and the percussion section, it seems that Richards was given quite a bit of artistic license in his role. Richards was an incredibly

[201] Jessica Getman, "Music, Race, and Gender in the Original Series of Star Trek (1966-69)." (Dissertation, Ann Arbor, MI, University of Michigan, 2015), https://deepblue.lib.umich.edu/handle/2027.42/113404.
[202] Hubbert, *Celluloid Symphonies,* 305.
[203] Emil Richards's percussion selections included: log drums, conch shells (of mixed types and sizes), steel mixing bowls, an anvil, the lujon (multiple sizes), the Death Toll, Mahler chimes, a jawbone, a ram's horn, a friction drum, angklung, and various slide whistles.

talented percussionist and a child prodigy on percussion, playing the xylophone at six years old. Richards created his own band called the Microtonal Blues Band and toured with some of the greatest popular musicians in the United States. He played with Charles Mingus, Perry Como, Frank Zappa, Frank Sinatra, Doris Day, Judy Garland, Steely Dan, George Harrison, and Sarah Vaughan, and worked as a studio musician with credits including *Mission: Impossible* and themes for *The Addams Family* and *The Simpsons.*[204]

Richards learned a lot about a variety of instruments during his extensive career as a performing and touring musician, prior to his work in Hollywood. In 1962, Richards played with Frank Sinatra for his World Tour for Children that made stops in the Middle East, Europe (England, Italy, France, and Greece), and Asia (Hong Kong and Japan). During this tour Richards was introduced to many Eastern percussion instruments and began building his collection of over 350 instruments.[205] Reviewing Goldsmith's handwritten score, it is obvious that Goldsmith was almost entirely unaware of the instruments, such as the lujon and angklung, that Richards was bringing into the studio. In the score, Goldsmith frequently spells the names of Richards's instruments incorrectly, writing angklung as "unglung," and the lujon as "loo-johns," for example. Goldsmith shouldn't be too embarrassed by these mistakes since Richards was far ahead of the rest of Hollywood when it came to incorporating unfamiliar percussion instruments in the recording studio. Goldsmith employed Richards to his fullest potential and his broad range of timbres contributed greatly to the spacey, sonic mélange that runs throughout the score.

[204] NPR.org. "Emil Richards: Timekeeper of Tinseltown." Accessed February 21, 2020. https://www.npr.org/2011/02/27/134053797/emil-richards-timekeeper-of-tinseltown.
[205] This collection is split into two different groups. 65 instruments were donated to the Percussive Arts Society in Oklahoma, of which he is a Hall of Fame member. Many other instruments were sold to Los Angeles Percussion Rentals, which still holds the instruments today.

The variety of percussion also engenders an acousmatic effect, displacing sound from source, evident particularly in the steel mixing bowls, which produce a timbre that most audiences would expect to come from a percussion instrument and not a household kitchen item. These quasi-acousmatic effects, paired with perplexing landscapes, allow the audience to experience the same sonic defamiliarization and disorientation that is felt by the astronauts as they trek through this new environment.

It was not just the instruments that made Goldsmith's score so captivating and effective, but also the way he implemented them in conjunction with more avant garde musical techniques. Rather than relying on electronics, Goldsmith drew on several modernist composers from the first half of the twentieth century for technical and compositional inspiration. At the end of the *Cinefantastique* interview, Goldsmith mentions the influence of Stravinsky, Bartók, Berg, and Schoenberg.[206] Goldsmith rarely speaks with any specificity about which aspects he drew from which composers, however, leaving scholars to document these influences by digging through the music for this score to find specific instances of imitation or borrowing.

In their article on the twentieth-century compositional techniques found in *Planet of the Apes,* Jon Fitzgerald and Philip Hayward write that the piano, heard in the "Main Title," is "reminiscent of John Cage's 'prepared piano' sounds."[207] As John O'Callaghan notes, this statement is slightly off-base, considering the Cagean definition of a prepared piano, which involves objects stuck in between the strings of the piano, such as nails, screws, and weather stripping. Goldsmith, however, only mentions striking the strings with different objects, or playing the piano with the performer's hand on the strings. O'Callaghan writes, "many have

[206] Winogura, "Jerry Goldsmith: Apes 1 and 3." 37.
[207] Fitzgerald and Hayward, "The Sound of an Upside-Down World." 33.

confused *unorthodox playing techniques* on a piano under a general description that Goldsmith used a *prepared piano,* a-la John Cage, for this score."[208] Hayward and Fitzgerald further discuss the influence of Stravinsky and primitivist techniques that can be connected with his *Rite of Spring:* "dissonant harmonies, innovative orchestrations and driving, accentuated rhythms," which underscored the primitivist stylings of Vaslav Nijinsky's choreography.[209] Following Hayward and Fitzgerald, I believe Goldsmith's instrumentation choices, such as the jawbones, shofar, conch shells, angklung, and cowbells, are further evidence of primitivism in Goldsmith's score, especially with their symbolic connection to the apes.

O'Callaghan dismisses the idea that Goldsmith's music is "pure Stravinsky," discrediting claims that Goldsmith copied parts of Stravinsky's *Movements for Piano and Orchestra* (1959) and *Variations* (1964), both of which use serial procedures. But he finds a more robust connection between Goldsmith and Béla Bartók in their reliance on "odd meters that created fresh and unusual rhythmic effects." He continues, "[Bartók] was very interested in emulating sounds found in nature—particularly the mysterious sounds of the night. [He] often used instruments of the traditional orchestra in unorthodox ways or combinations to create odd or alien sounds."[210] In 1997, Goldsmith acknowledged Bartók's influence on his own musical style in an interview with music critic Lesley Valdes of *The Philadelphia Inquirer*. Valdes wrote, "You can't have a conversation with Jerry Goldsmith without having Béla Bartók crop up. There's a lot of Bartókian night music in *Basic Instinct*." Goldsmith replied, "You listen to my music and you know it."[211] More specifically, I find an ecological connection between Goldsmith's score for

[208] O'Callaghan, *Simians and Serialism*. 46.
[209] Fitzgerald and Hayward, "The Sound of an Upside-Down World." 38.
[210] O'Callaghan, *Simians and Serialism*. 41.
[211] Valdes, "Longtime Film Composer Relishes Chance to Stretch Out."

Planet of the Apes and the third movement of Bartók's *Music for Strings, Percussion, and Celesta.* Though he is more specifically focused on the motivic relationship between Goldsmith's underscoring and this movement (discussed below), O'Callaghan is curious about the elements of Bartók's night music in Goldsmith's score.[212]

Comparing Goldsmith's music to Bartók's night music style opens the door for an ecomusicological analysis of Goldsmith's compositional choices. *Planet*'s storytelling centers around the misperceptions of the environment and reading Goldsmith's score as connected to that narrative allows us to see his musical choices as having ecological implications. I will show how Goldsmith employs natural sounds, animal sounds, and ostinatos, creating a new, wild environment for this outer space sci-fi soundworld, twisting pastoral musical tropes to emphasize the very opposite of the safety and familiarity that is commonly evoked by the pastoral.

Sounds of the Post-Apocalyptic Earth

My review of primary source materials, including interviews and close study of his handwritten music sketches, confirms what moviegoers have heard for decades: timbre was important to Goldsmith, especially in *Planet of the Apes.* Goldsmith wanted to create "a very organic, impressionistic score," but primitivism and futurism seem more likely points of

[212] David E. Schneider, *Bartók, Hungary, and the Renewal of Tradition Case Studies in the Intersection of Modernity and Nationality* (Berkeley: University of California Press, 2006), 84. And: Hubert Unverricht and Cliff Eisen, "Notturno," Grove Music Online, accessed November 4, 2020, https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000020135. Differentiating Bartók's style from the Italian *Notturno* and the German *Nachtmusik,* which more directly refers to music performed outdoors late at night, musicologist David E. Schneider observes that Bartók's night music style is an homage to "a specifically Hungarian tradition of poetic representations of the night." Bartók's night music style is difficult to define exactly, but there are several characteristic features that often appear in his music. Slower tempos, dissonance and cluster chords, an ostinato figure, and wide pitch ranges combine with imitations of natural sounds and nocturnal animals, evoking the spaciousness and eeriness of the nighttime environment. Several musicologists refer to Bartók's piano suite, *Out of Doors* (1926) as a foundational piece to understand this style, specifically the fourth movement, "The Night's Music." One animal sound that is frequently identified is that of the Hungarian Unka frog, whose call first appears in measure 6.

reference, with percussion and non-western instruments associated with the prehistoric past and electronic-sounding instruments, such as the electric harp with added echo and reverb effects evoking an advanced, technology-driven world.[213] This delineation is immediately evident in *Planet*'s "Main Title." We first hear a piano playing a low E♭, dampened by a finger, a mixture of percussion and a bass slide whistle, which could easily be mistaken for an electronic noise. This short, rhythmic unit repeats once more before the title card appears across the screen, and the music dramatically crescendos with a whole new cast of instruments, including the shofar, timbales, angklung, gong, and air sounds made by reversing the French horn mouthpiece and blowing through it. Primitivist percussion marks the moment when we see "Planet of the Apes" hover in the middle of the screen, making it impossible to ignore that Goldsmith was linking these sounds with the apes. These timbres quickly disappear as the title fades to black, and large, glistening stars glide across the emptiness of outer space. This visual change is accompanied by a sonic change, as the primitivist percussion is replaced with the electric harp which is further processed by an Echoplex with "slow reverb." The soft echo of the electric harp, playing quasi-dissonant dyads against the starry background gives a feeling of weightlessness and mystery.

Cynthia J. Miller notes that Goldsmith's underscoring in this opening title sequence is a characteristic of his scores for futuristic films and that it demonstrates "the ways in which his compositions often stepped away from standard orchestral writing and performance, evoking contrasting images of time and space, and creating tension between the strange and familiar."[214] In his film commentary that accompanied a re-release of *Planet* in 2006, Goldsmith spoke

[213] Franklin J. Schaffner, *Planet of the Apes* (Beverly Hills, Calif.: 20th Century Fox Home Entertainment, 1968). Film extras, commentary by Jerry Goldsmith. Timestamp: 0:01:15.
[214] Miller, "Seeing Beyond His Own Time: The Sounds of Jerry Goldsmith," 211.

directly about the balance of primitivism and futurism in his score, stating "I wanted to keep this primitive feel within the music, and yet, the style of the music was quite modern."[215]

In a later scene, when Taylor and the ape scientists explore the cave in the forbidden zone and the archaeological dig site within it, we specifically hear percussion alluding to primitivism. This scene is crucial for the development of the narrative, as it is in this cave that we discover the artifacts of an ancient civilization, including a doll and other familiar objects which are recognizable to the audience as not alien but human. As the group enters the cave, we hear a variety of percussion instruments: jawbones, claves, log drums, cowbells, angklung, and the bass strings of a piano struck with a bass drum mallet. This list of instruments has a museum-like quality, perhaps reflecting the prehistoric nature of the cave and its archaeological dig site. The soft, sustained rolling of a log drum underpins a trio of chirps and echoes from jangling jawbones, angklung, cowbells, and claves. As opposed to some of the other scenes, where a "futurist" component is present, this cue displays only primitivist elements. This decision about the underscoring reflects an interesting paradox relating directly to the drama of the scene. As Cornelius puts it, "the more ancient culture is the more advanced." We would expect Goldsmith to represent a more advanced society through a more modern cue, but instead we are given primitivist sounds that call into question our assumptions about technological and musical progress.

Film critic John Mahoney praised Goldsmith's percussion writing as one of the foremost strengths of Goldsmith's score, calling it "Chávezian"—referring to the Mexican composer, conductor, and music theorist Carlos Chávez (1899 – 1978). Mahoney mentioned how the

[215] Schaffner, *Planet of the Apes*. Jerry Goldsmith, extra movie commentary, around 00:35:00.

"chimes tolling, distant echoes reverberating…pizzicato strings and piano…suggest the echoes of a world bereft of past life, desolate and yet hinting of strange dangers beyond the crest."[216] Mahoney's reference to "a world bereft of past life," represented by sporadic, distant timbres, hints at the nuclear destruction of the Earth, rendering it unrecognizable to humans and leaving the apes as the dominant species. The reality of the post-apocalyptic Earth, hidden through an archaeological cover-up conducted by Dr. Zaius and his cronies, is represented by the fusion of primitivist and avant-garde musical styles: now that the "future" has been left in the past, we have a primitivism found in the future. In the present, the conflation of the future and the past result in a score that effectively mixes electronic, futuristic timbres and primitivist, "Chávezian" percussive timbres—a purposeful muddling of two soundworlds. Following the dramatic scene on the beach where Taylor confronts Dr. Zaius about his lies and historical misinformation before departing down the coastline, the sounds of the Echoplex return, alongside a bass slide whistle. While temporally, Taylor finds himself far in the future, the current Earth is far more primitive than the Earth that he departed from two millennia earlier. Sonically, we might expect the same primitivist instruments that mirror the ape society and the undeveloped landscape, but instead we hear contrasting quasi-electronic and modern sounds of the Echoplex and slide whistle.

Goldsmith also used timbre to delineate between contrasting landscapes. In his DVD commentary from 2006, Goldsmith recalled that he wanted his score to "create a strange, unearthly atmosphere, which was not Earth."[217] The beginning of the film shows the planet as desolate and barren. During the desert hiking scenes that bring the crew from the lake where

[216] Mahoney, "'Planet of the Apes.'"
[217] Schaffner, *Planet of the Apes*. Jerry Goldsmith, extra movie commentary, 00:01:45.

they crash-landed to the oasis in the desert, Goldsmith's music is muted and sparse. We hear soft murmurs on the piano, dotted by percussive interjections, along with wandering melodies in the woodwinds and celeste. The high violins and harp are rendered mysterious by the Echoplex, a real-time, magnetic tape device that created an echo effect.[218] Another original and illustrative timbre in the desert sequence is the "swoosh of air," which evokes the windy emptiness of the landscape, the cryptic, backward nature of this alien planet, and perhaps the bewilderment expressed by the astronauts. The effect is woven into the repetitive musical tapestry of this landscape sequence and works in tandem with the sparse texture in the rest of the orchestra to create a desert soundworld, yet one that sounds strange to audiences familiar with sonic depictions of the American West by Aaron Copland, for example. At the same time, these repetitive musical fragments create space in the desert scenes in a similar way to pastoral ostinatos found in pastoral musical examples by Beethoven and Mozart.

In comparison to these desert scenes, the crew's arrival at the oasis sparks a major change in timbre and orchestration, moving from the unfamiliar toward the familiar. After their arduous journey, the crew stumbles upon signs of life. The clanging sound of steel mixing bowls, which are struck rapidly with a hard-tipped stick, mirrors the sound of rushing water off in the distance. This metallic timbre and the quick succession of strikes against the steel mixing bowls evokes the sound of water droplets, signaling the nearness of a waterfall. The steel mixing bowls fade as the crew arrives at the pool, surrounded by foliage, and the score immediately turns to broad and rich quasi-consonant harmonies in the brass and strings. In the final section of this cue the strange

[218] The Echoplex is arguably the genesis of studio effects, such as delay and reverb, that eventually became commonplace in recording and effects mixing, now done digitally. Though the Echoplex was more commonly found in popular music, Goldsmith used its echo and reverb effects in both *Planet* and *Alien*.

and unfamiliar timbres of the desert landscape are replaced with an almost pastoral sound, constructed by harmonies of fourths and fifths, painting the oasis as a familiar environment. The familiar timbres and harmonies in the orchestra may also signal the relief of the astronauts having finally found water and a place to rest from their weary travels. This more traditional approach to representing landscape through music is perhaps also a hint at the identity of the planet that the astronauts have landed on: the unmistakable sound of water, followed by a Coplandesque musical moment at the sight of the waterfall, might signal to some informed listeners that they are hearing American landscapes, which is confirmed at the end of the movie by the sight of the half-buried Statue of Liberty.

In addition to marking specific landscapes, Goldsmith selected specific instruments to mark the presence of apes throughout the film. During "The Hunt," we hear the shofar used to signal the arrival of the militarized apes, armed with guns and riding on horseback. The shofar is commonly a ram's horn with the inner marrow removed, creating a rudimentary "horn" that is blown from one end. Typically, the shofar is used in Jewish religious contexts, most importantly during Rosh Hashanah, where hearing the blowing of a shofar is considered a "central mitzvah." The shofar is blown 30 times during the Torah reading, followed by another 70 during the Musaf service. The shofar's blast has garnered many meanings: it recalls the story of Isaac, who was nearly sacrificed by Abraham, though replaced by a ram; serves as a reminder to do *teshuvah* (repentance); commemorates the covenant between Jews and God; and functions as a symbolic battle cry for the Jewish people.[219] This last association, a symbolic battle cry, rings most clearly

[219] Assertions about the meaning of the shofar are numerous and varied. For more about the shofar and a longer bibliography, read here: Jeremy Montagu, "Shofar," Grove Music Online, January 20, 2001, https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000025658.

in this context, as Goldsmith is using the shofar and its powerful blast as a literal battle cry for the apes.[220] The shofar is also a great choice as a horn for a primitive society, where nonexistent metallurgy skills necessitated an organic horn.

The apes are also represented timbrally by the cuíca, an Afro-Brazilian friction drum frequently associated with animal noises, especially those of large cats, like jaguars and lions. The cuíca is regional to the Brazilian state of Bahia but is known as the *puíta* in São Paolo and *pwita* in Angola.[221] The distinct timbre of the cuíca can be produced at both lower and higher pitches, ranging from a high-pitched squeak, which may be associated with the possum-like animal that goes by the same name, to a low roar, similar to that of a lioness, more often found in African contexts to attract male lions.[222] The cuíca's preexisting associations with animal noises, both in Angola and in Bahia, make it a logical choice to represent animal sounds in *Planet*. The cuíca enters again in "The Hunt – Part One," the first time that Taylor, Landon, and Dodge come face to face with the apes. The cuíca returns in "No Escape," where Taylor is surrounded by seemingly every ape in the village (note that the shofar is not used in this cue because the apes are presented as a society, not as a military unit). Goldsmith's selection of the cuíca exemplifies his goal to diversify his orchestra with unconventional instruments and to select instruments that effectively symbolize certain elements within the film and its narrative.

The Echoplex, another unconventional instrument in Goldsmith's orchestra, features frequently in Goldsmith's score. Its distinct sound effect blurs the boundary between acoustic

[220] In Joshua 6, as the Jews surrounded the city walls of Jericho, Joshua commanded seven priests to blow their seven shofars continuously as the armed soldiers stormed the walls and took the city on the seventh day.
[221] Fryer mentions that the cuíca has many other names: *roncador, socador, tambor onça*, to name a few. The *tambor onça* means "jaguar drum."
[222] Fryer, *Rhythms of Resistance* (2000) 157; and, Kubik, *Angolan Traits in Black Brazilian Music.*

and electronic and symbolizes space in open environments. As a device that allowed performers and studio producers to create a delay effect, the Echoplex worked by recording a sound onto a strip of magnetic tape which then passed over a movable tape head that would play back the recorded material, thus creating a delay from the original sound. The Echoplex was not the first tape delay effect device; Ray Butts, an engineer and inventor, created a similar device in the early 1950s called the EchoSonic, which was used by many great guitarists of the period including Chet Atkins, Scotty Moore, and Carl Lee Perkins. Butts was unable to keep up with the demand for his devices (he made less than 100 himself) and many other imitations found their way to the market, with Battle's Echoplex being the most popular and best sounding.[223] The movable tape head, a unique design feature of Battle's Echoplex, allowed performers to adjust the tape delay effect for their own musical needs.

While magnetic tape as a means for creating sound effects was not a new technique in Hollywood studios (see Chapter 2), Goldsmith may have been the first composer to employ the Echoplex in a film score, and he did so in many of his film scores from the 1960s and 1970s, including *Planet of the Apes, Patton* (1970), *In Harm's Way* (1965), *The Mephisto Waltz* (1971), *The Cassandra Crossing* (1976), *Star Trek: The Motion Picture* (1979), and *Alien* (1979).[224] Goldsmith's decision to include the Echoplex in *Planet of the Apes* seems to conflict with his retrospective claim that he wanted to avoid electronics or other cliché sounds. It could be argued

[223] Mike Battle, Mike Battle, interview by NAMM Oral History Program, Video, July 19, 2002, https://www.namm.org/library/oral-history/mike-battle. The history behind Battle's Echoplex and how he developed his version of Butts's EchoSonic is unclear, but Battle's Echoplex was the first tape delay effect machine that used vacuum tubes to control its electronic circuitry. The Echoplex was also found in several major recording studios, most notably at Sun Records, founded by producing legend Sam Phillips, who used it to record some of Elvis Presley's first recordings.

[224] Maurice Jarre (1924 – 2009), another famous Hollywood composer writing from the 1960s through the 1990s, used the Echoplex at great length in some of his film scores.

that the Echoplex is merely reproducing an acoustic sound, since the original sound source is a percussion, woodwind, string, or brass instrument, but the overall effect created through the combination of an acoustic sound source and the Echoplex is suggestive of electronics and electronically generated sound effects, otherwise unattainable through acoustic means. Whether we consider it acoustic or electronic, the Echoplex's tape delay effect works in tandem with Goldsmith's orchestration to construct his distinct sound of science fiction. His use of the Echoplex for *Planet of the Apes*—and eventually for *Alien*—appears to have inspired several other science fiction composers to consider how this sound effect could also contribute to their own film scores. The Echoplex appears frequently in film scores following *Alien*'s premiere in 1979. James Horner, known for his use of electronics in Hollywood film scores, used the Echoplex in *The Hand* (1981), *Wolfen* (1981), *Gorky Park* (1983), and *Aliens* (1986). Harry Manfredini also incorporated the Echoplex into some of his film scores—it is particularly noticeable in *Friday the 13th* (1980).

In *Planet of the Apes*, the Echoplex is responsible for defining the emptiness of a landscape by creating an echo effect—a common compositional device that has been used widely in pastoral music—while simultaneously signaling science fiction's preoccupation with advanced technology. The Echoplex's symbolic usage during the "Main Title" sequence is exemplified by what we see on screen: the inside of a spaceship and a montage of large, glimmering stars pass across the screen. This illustrates the confluence of futuristic technology (Echoplex) and the never-ending vastness of outer space (the echo effect). Many of the cues in Goldsmith's *Planet* score have a section that is recorded through the Echoplex, and the symbolism of the Echoplex remains true for those instances. As I discussed in Chapter 2, Louis and Bebe Barron's electronic film score for *Forbidden Planet* combined cybernetic circuits and magnetic tape manipulation to

create their technologically advanced outer space soundworld. The futuristic world in *Forbidden Planet*, exemplified through Robby the Robot, stands in sharp contrast to the primitive, anti-technological society in *Planet*, where flight had not yet been discovered by the apes. The Echoplex, a much simpler device by comparison, shows that in *Planet* Goldsmith valued a different kind of complexity.

Serialism as Ecological Symbolism in *Planet of the Apes*

In addition to using instrumentation and timbre to evoke what Goldsmith called a "strange" and "unearthly atmosphere," Goldsmith embraced serialism for his melodic and harmonic structures, creating what I would argue is another example of ecological symbolism about the identity of the planet.[225] Even after multiple hearings, it is likely that the general audience would miss his serial constructions. Yet Goldsmith referred to himself as a serialist composer, and *Planet of the Apes* was not his first attempt at serial film music. He used the twelve-tone technique for his score for *Freud* in 1962, but the technique remains rare in the film music world, and Goldsmith references only one other earlier use of serialism by Leonard Roseman's score for *The Cobweb* (1955).[226] One could thus argue that Goldsmith was drawing upon Rosenman's score as influence for *Freud*.

Interestingly, there is a thematic connection between the films. Both *The Cobweb* and *Freud* are psychologically focused films, portraying the struggles with mental health and psychiatric care. *The Cobweb,* based on William Gibson's novel by the same name, follows a new doctor who has just taken charge over a psychiatric institution that has been run into the ground by the previous head doctor; it details his care for two particularly troubled patients, which causes

[225] Jerry Goldsmith, *Planet of the Apes* DVD commentary, 1:45.
[226] Jerry Goldsmith, *Planet of the Apes* DVD Extras.

trouble for his relationship with his wife. *Freud: The Secret Passion,* a biopic directed by John Huston, depicts the life of the Austrian psychologist Sigmund Freud (Montgomery Clift). The original script was written by the French philosopher Jean-Paul Sartre and covers the period during which Freud was developing and practicing his psychoanalysis theory and procedures. Freud encounters one particularly ill patient, Cecily Koertner (Susannah York), who is obsessed with her father, sexually repressed, and clinically hysterical. The film shows Freud interacting with Koertner, testing several hypnoses to develop his theories of psychoanalysis, but it also depicts his home life and exchanges with his wife, Martha (Susan Kohner), who discusses and critiques his theories and publications. *Freud's* soundtrack is extremely compelling and is one of Goldsmith's earliest successes, earning him his first Oscar nomination—though he lost to another young composer, Maurice Jarre, and his score for *Lawrence of Arabia*. We hear Goldsmith's dissonant serialism prominently in the scenes where Freud attempts to hypnotize Cecily as a method of treating her neuroses, connecting the complexity of the compositional technique with the intricacies of human neurological systems. The interweaving of serial rows, seemingly in random order, almost as if to confuse the audience, can be heard as a sonic reflection of Cecily's hysteria. Constructing the matrix from the intertwined rows in each of these scenes is akin to Freud's pursuit of understanding and properly treating Cecily's debilitating illness.

Goldsmith's serialism in *Freud* could be interpreted in at least two ways: as a reflection of the complexity of the human mind and the psychological unknowns that were still present at the beginning of the twentieth century; and as a marker of Freud's association with *fin-de-siècle* Viennese expressionism, where artistic freedom led to a variety of avant-garde techniques. The serialism in *Freud* and its subsequent appearance in *Planet* suggests that there is a psychological

element in *Planet*, manifested in part as a form of ecological misperception. I believe that Goldsmith positions the serial matrix in *Planet* for ecological symbolism, using specific rows to signify the identity of the landscape and a wider array of rows representing the astronauts' misperception of the planet they have landed upon.

The serial matrix that Goldsmith uses for *Planet of the Apes* is based on the prime row of C-A-Bb-Eb-D-B-Db-Ab-Gb-G-E-F, and the resulting inversion, C-Eb-D-A-Bb-Db-B-E-Gb-F-Ab-G.

Figure 1: Goldsmith's Serial Matrix for Planet of the Apes

	I_0	I_9	I_{10}	I_3	I_2	I_{11}	I_1	I_8	I_6	I_7	I_4	I_5	
P_0	C	A	B♭	E♭	D	B	D♭	A♭	G♭	G	E	F	R_0
P_3	E♭	C	D♭	G♭	F	D	E	B	A	B♭	G	A♭	R_3
P_2	D	B	C	F	E	D♭	E♭	B♭	A♭	A	G♭	G	R_2
P_9	A	G♭	G	C	B	A♭	B♭	F	E♭	E	D♭	D	R_9
P_{10}	B♭	G	A♭	D♭	C	A	B	G♭	E	F	D	E♭	R_{10}
P_1	D♭	B♭	B	E	E♭	C	D	A	G	A♭	F	G♭	R_1
P_{11}	B	A♭	A	D	D♭	B♭	C	G	F	G♭	E♭	E	R_{11}
P_4	E	D♭	D	G	G♭	E♭	F	C	B♭	B	A♭	A	R_4
P_6	G♭	E♭	E	A	A♭	F	G	D	C	D♭	B♭	B	R_6
P_5	F	D	E♭	A♭	G	E	G♭	D♭	B	C	A	B♭	R_5
P_8	A♭	F	G♭	B	B♭	G	A	E	D	E♭	C	D♭	R_8
P_7	G	E	F	B♭	A	G♭	A♭	E♭	D♭	D	B	C	R_7
	RI_0	RI_9	RI_{10}	RI_3	RI_2	RI_{11}	RI_1	RI_8	RI_6	RI_7	RI_4	RI_5	

Taking a closer look at this prime row, I find that it is rather "tonal." There are several minor seconds, but there are also minor thirds, located between C and A, D and B, and G and E, and perfect fourths and fifths, such as the B♭ and E♭ or D♭ and A♭. As a result of these moments of local tonality, there are a few anchor points that stick out in the prime row: B♭, E♭, A♭, G, and F. These notes are all preceded by some form of a "cadence," either by a fifth, fourth, or minor

second, which could be heard as a leading tone, indicating some sense of a "local tonality" throughout the row. This quasi-tonality confirms Goldsmith's connections to Second Viennese School composers like Schoenberg and Berg, whose serialist idiom was sometimes tonally chromatic. My analysis suggests that Goldsmith relied on serialism for several things, including melodic and thematic creation, as well as a potential avenue for allegory. Most of the interpretive ideas that I offer are my own, since Goldsmith rarely, if ever, explained the details of his score. In the *Planet* movie commentary, he says that he did not want "to bore [anyone] with the technical details."[227] Many of these technical details are set out by John O'Callaghan, in the second edition of his book, *Simians and Serialism.*[228]

O'Callaghan goes to great lengths to understand the origins of this particular row and why Goldsmith chose it for *Planet of the Apes*. He searched the music of the composers that Goldsmith mentioned as influences, and found little from Stravinsky or Berg, but did find some connection with Bartók through the "C" section of the third movement of his *Music for Strings, Percussion, and Celesta* (1936). O'Callaghan appears to be referring to rehearsal letter C, or measure 45, where Bartók uses the notes C-A-B♭-E♭-D, the first six notes of Goldsmith's prime row, as the main motif resounding throughout the entire orchestra. Looking closely for further connections in Goldsmith's row, we see the B-A-C-H (B♭) motif in the first four notes of R-5.[229] This common musical cryptogram, paired with the Bartók quotation, makes both potential borrowings seem more likely. We know that Goldsmith's serial style aligns most closely with the Second Viennese School composers Schoenberg, Berg, and Webern, as evidenced by his own

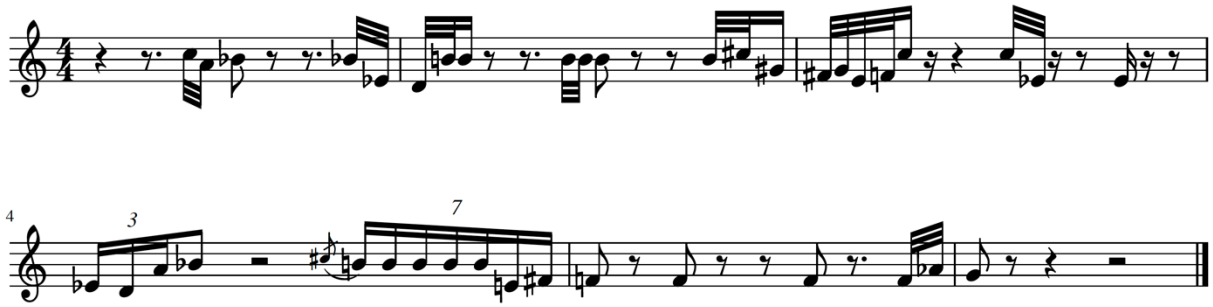
[227] Schaffner, *Planet of the Apes*. Film extra, commentary by Jerry Goldsmith, around timestamp 00:35:00.
[228] O'Callaghan, *Simians and Serialism*.
[229] Many thanks to Professor Chris Reynolds for pointing this out during a trial run of an AMS paper.

remarks, his compositional training, and his serialist music for *Freud*. Both Schoenberg and Webern used the B-A-C-H motif: Schoenberg in his *Variations for Orchestra,* Op. 31 and Webern in his String Quartet, Op. 28, in which the tone row is based on the B-A-C-H motif.

O'Callaghan's study of Goldsmith's score is rich and helpful for those looking to understand all the serial complexities of the score, but his analysis falls short of making any real interpretive claims about the role of serialism in the film. My own analysis suggests that Goldsmith's implementation of serial rows sheds light on some of the overarching themes of *Planet,* including ecological symbolism about the identity of the environment, as well as the relationship between human and ape and their use of technology.

One of the most common uses of serialism in his score is the side-by-side arrangement of prime rows and inverted rows. The most obvious example of this arrangement appears in the "Main Title" cue, and P-0 and I-0 are played back-to-back by piccolo, oboe, and clarinet.

Example 6: P-0 and I-0 from "Main Title," Planet of the Apes; measures 14–19.



The ordering of these two rows is easily readable as a "world turned upside down." This phrase, "upside-down," first spoken by Goldsmith, has also been invoked by music theorists Philip Hayward and John Fitzgerald in their article about *Planet,* though they ignore the film's

pervasive use of serialism.[230] Keeping Goldsmith's serial construction in mind, we can see that the inverted row literally turns each interval upside-down. In the context of the film, this obscure, practically inaudible intervallic trick may represent the hidden truth that the crew has yet to perceive: the apparently distant planet on which they crashed landed is actually the Earth, rendered unrecognizable by nuclear war. For the purposes of this analysis, I argue that P-0 and I-0 are representations of the Earth presented in the film: P-0 represents the real identity of the planet, the Earth, and I-0 represents the upside-down Earth that is not immediately recognizable, but nonetheless is still the Earth.

In "The Revelation – Part One," Goldsmith's serial pairing of P-0 and I-0 symbolizes the mysterious behavior expressed by Dr. Zaius, suggesting that he knows more about intelligent humans than he is letting on. "The Revelation – Part One" underscores the scene in which Taylor attempts to communicate with the apes by scrawling a message in the red dirt while jailed with other humans in a large, outdoor cage. Dr. Cornelius and Dr. Zira approach the cage and Taylor seizes the opportunity and inscribes "I CAN WRITE" in the dirt with his finger. Enraged by Nova wiping away his writing, Taylor starts to fight other humans in the cage before being dragged out. Dr. Zaius walks back to the message to find the word "WRITE" remaining. He brushes it away with his cane before others notice. Goldsmith's underscoring begins right as Taylor erupts inside the cage. In this scene the prime rows seem to represent Taylor getting closer to successful communication while retrograde rows accompany moments of frustration. As he is fighting, Goldsmith uses RI-10, symbolizing Taylor's failure to catch the eye of Zira and Cornelius. With Taylor finally subdued by the ape guards, Goldsmith writes RI-6 and R-6,

[230] Fitzgerald and Hayward, "The Sound of an Upside-Down World."

again confirming his longshot hopes of communicating his intelligence. However, in the moment when Taylor's writing catches Dr. Zaius's eye, Goldsmith chooses rows P-7 and P-3, close relatives of P-0, perhaps indicating a glimmer of hope.

As the ape guards relocate Taylor back to his indoor cage, he grabs Dr. Zira's notebook and pen from her shirt pocket and writes "My name is Taylor," before the apes violently snatch the notebook back. Here, Goldsmith writes the first four notes of P-0 as the top pitches of four chords in the orchestra, then I-0 played by an English horn, which is passed off to a solo alto flute playing directly into P-0 at the very end of the cue, recalling the material in the "Main Title." At last, Taylor has successfully communicated with the apes, showing that he is an intelligent human beyond what the other apes have ever seen.

Goldsmith returns to using P-0 and I-0 as markers of the ecological identity of the planet in "A Bid for Freedom." In this cue, we find Zira and her nephew Lucius breaking Taylor and Nova out of their jail cell. They trick the guards and load Taylor and Nova into a wagon, and they depart the village, heading toward the Forbidden Zone. A combination of I-0 followed by P-0 can be heard as the sun rises and we see the wagon pass through the fields where Taylor and Nova were first captured by the apes. The use of P-0 and I-0 here is significant in that it marks our first return to the Forbidden Zone and is the beginning of the big revelation that the planet is actually the Earth. The combination of these two rows is essential for these scenes particularly because it upholds the musical clues from the very beginning of the film: I-0 and P-0 are simply inversions of each other, the world turned upside-down.

Travel in the Forbidden Zone is prohibited by the apes because it holds the history of the advanced human civilizations that existed before. Unfortunately, as we find out at the end of the movie, this once beautiful, resource abundant region was destroyed by humans through nuclear

war. Because this section of the landscape holds the key to unlocking the identity of the planet as Earth, it is reasonable to conclude that frequent statements of P-0 throughout will substantiate the various clues that reveal the planet's identity as Earth. "The Forbidden Zone" cue differs slightly from the "Main Title" and the other instances where P-0 is paired with I-0. In "The Forbidden Zone," Goldsmith only uses P-0, but the row is pervasive throughout all sections of the cue. The cue begins with a brief rhythmic introduction by the woodwinds playing cluster chords, which fades away into a sustained A2 in the violas, French horn with wooden mute, and cellos. Underneath the droning strings and horns, we hear the piano methodically sounding P-0, repeating itself rhythmically as if it were an ostinato figure for nearly one minute. On top of the repeating piano figure, the muted violins playing harmonics simultaneously sound P-0 at a much slower pace. While we do hear one instance of P-9 played by the cellos before the piano enters, this row does not return, and P-0 dominates the remainder of the cue. In the middle of the cue, there is a large break in sound where the large log drum plays a sparse rhythmic figure, but this texture wanes and a downward glissing bass slide whistle indicates the return of the prime row ostinato in the piano, only this time Goldsmith modulates the pattern up to P-1: a very minor change that is nearly inaudible to the listener given the distance between the two section of piano ostinato.

The singling out of P-0, without I-0, can also be found in the final cue, "The Revelation – Part 2." Here I argue that Goldsmith accurately represents the twist ending and ultimate revelation by using P-0 several times in multiple instruments; the cue closes with an electric bass flute playing the first four notes of P-0—the last thing we hear before the Statue of Liberty appears on screen. While Taylor had been told back at the cave that he and his fellow astronauts had landed on the post-nuclear Earth, he did not notice anything about the landscape that

confirmed this claim. Dr. Zaius tells Taylor outside the cave that the humans were responsible for the destruction of the planet through nuclear conflict. Taylor is no longer confused; he has fully realized where he has arrived, in the shadow of the Statue of Liberty. As the cue comes to an end, Goldsmith writes the first 6 pitches of P-0, structured as a six-note chord, for electric harp with Echoplex, repeating three times.

In other scenes, serialism is used to disorient the listener, rather than providing clues about the planet's identity. The "Crash Landing" cue is preceded by a dizzying series of landscape shots whizzing past the screen, flying in many directions, matching the effect one might see out of the window in a real crash landing. We hear the loud and grinding jet engine sound effect crescendo as the spaceship nears the surface of the planet. The ship crashes into the water and the orchestra roars to life with all sections bursting forth in exuberant cluster chords and rapidly rising and descending chromatic scales in pitched percussion, harp, and strings, which function more as a sound effect. A high, jarring cluster chord leads us into the ship's main cabin and the underscoring relaxes as the crew awakens from their hibernation. The forceful music returns as the crew hurriedly escapes the sinking spaceship and the serial melodies swirl throughout the underscoring, reflecting the disorientation of the crew as they struggle to discover where they have landed while also acting quickly to save themselves from danger. In this particular cue, it seems that Goldsmith is actively replicating the uncontrollable craziness of the crash landing and the subsequent disorientation experienced by the astronauts by composing a flurry of serial rows. "Crash Landing" contains more serial rows and a greater diversity of serial rows than any other cue in the score. In this cue, Goldsmith includes over 17 different row forms, the sheer scale of which is enough to create a disorienting effect, as the music quickly leaps across the serial matrix with no apparent structure. The serial rows present in this cue also

reflect acts of transposition, not just for the music, but also for the humans, as they are transported by way of the crash landing to a "new" landscape in outer space. Another important feature of Goldsmith's serialism in this cue that is easily overlooked due to the diversity of rows is the preeminence of prime rows, which might be interpreted as a hint to the planet's identity, though this hint is hidden among a sea of other row forms.

In his only two serialist film scores, Goldsmith appears to position serialism as an enigmatic puzzle: in *Freud,* it involves uncovering what mental illness was harming the patient; for *Planet,* it involves discovering the identity of the planet the astronauts have landed on. Prior to Goldsmith, there only a few documented instances of serialism's use in a Hollywood feature film, which begs the question: Why would Goldsmith use serialism for *Planet*? *Planet*'s narrative is not outwardly psychological, as is the case in *Freud* and *The Cobweb*, but it does present issues with perception, confusion, and disorientation, playing into what *Planet* borrows from the psychological thriller genre. Perhaps Goldsmith chose serialism because of its potential for hidden symbolism, using individual rows to represent specific elements of the environment and the plot, and its ability to mirror the intellectual complexity of the film's narrative with a musical structure that is equally intricate. Ten years later, when Goldsmith was asked to score *Alien,* he chose different means of musical symbolism, in part because of *Alien*'s strong connections to the world of horror films.

From Intellectual Complexity to Raw Horror

The similarities between *Planet of the Apes* and *Alien* are obvious: they are both sci-fi films set in outer space (or working with outer space themes); both stories describe a team of astronauts traveling to a distant location and encountering strange beings; and both of

Goldsmith's film scores utilize a wide array of avant-garde techniques and diverse instrumentation. But there are several key differences between these two films, particularly apparent in *Alien*'s use of special effects and its dramatic premise. *Planet* is all about intellectual complexity and does not shy away from making that the focal point of its narrative. Goldsmith's musical choices are equally as "intellectual," with the serial matrix serving as the primary melodic and harmonic structuring tool for the score. The most striking special effects in *Planet* are the costumes of the apes themselves, highlighting the key question of what is human and what is not. While *Planet*'s audiences are invited to engage with these puzzles, both musically and visually, the audience for *Alien* has little to do but watch and scream.

These obvious differences reflect contrasting genre associations. Director Ridley Scott designed *Alien* to be a horror and thriller sci-fi film. Many of the film's special effects operate alongside straightforward and somewhat lackluster storytelling, leaving viewers instead to focus on the terror of this environment and the alien, an embodiment of its environment. Given the simplicity of the narrative, Goldsmith's score instead focuses on enhancing the emotional relationship with the environment. He maintains his mostly acoustic orchestration and timbral diversity to comment on the potential threat of technology and, instead of serial complexity, Goldsmith's surface dissonance pervades his score for *Alien*, augmenting the scariest elements of the environment and the alien.

Premiering on June 22, 1979, Ridley Scott's *Alien* shook audiences to the core through a horror sci-fi narrative that stood in sharp contrast to the other outer space sci-fi films of the end of the decade, such as *Star Trek: The Motion Picture* (1979) and *Star Wars* (1977), which I will discuss in greater detail in the following chapter. Critics received *Alien* with skepticism, resisting calling it a Hollywood blockbuster by writing it off as unoriginal and a rehashing of narrative

from the 1950s. Derek Malcolm of *The Guardian,* Vincent Canby of *The New York Times,* and Roger Ebert all agree that *Alien*'s screenplay bears a striking similarity to that of *The Thing from Outer Space* (1951), and also has the same fear factor as *Jaws* (1975) or *Halloween* (1978), without the "wit" of *Star Wars*.[231]

Instead of the screenplay, critics believed the true value in *Alien* was everything else: the special effects, costuming, and set design. *Variety* described *Alien* as having "expert technical craftsmanship," and the film eventually won the 1980 Academy Award for Best Visual Effects. Many of the visual appeals are a result of set designer H. R. Giger, who brought a strange combination of erotic scenery with art nouveau styles to create what he called an "organic" and "biomechanical" landscape.[232] Unlike many reviewers who quickly passed over Goldsmith's scoring, the production team seemed to place a lot of value in the sound design and music. The anecdotal evidence about *Alien's* two previews confirms that the sound was an integral part of *Alien*'s success. In recalling the very first preview in St. Louis, Scott was worried that the film was going to fall flat because of the improperly functioning sound system in the theater: two of the speakers were out and he heard that people were convinced that *Alien* had a bad soundtrack. Scott's reaction suggests that he found Goldsmith's music crucial to the film's impact, which was borne out during in the second preview in Dallas. After the showing, Scott believed it was one of the most successful previews he had every attended and said that part of the reason he felt it was

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[231] Derek Malcolm, "Derek Malcolm's Alien Review from 1979," the Guardian, October 12, 2009, http://www.theguardian.com/film/2009/oct/13/derek-malcolm-alien-review. Vincent Canby, "Screen: 'Alien 'Brings Chills From the Far Galaxy: A Gothic Set in Space (Published 1979)," *The New York Times*, May 25, 1979, sec. Archives, https://www.nytimes.com/1979/05/25/archives/screen-alien-brings-chills-from-the-far-galaxya-gothic-set-in-space.html. Roger Ebert, "Alien Movie Review & Film Summary (1979) | Roger Ebert," https://www.rogerebert.com/, accessed December 10, 2020, https://www.rogerebert.com/reviews/great-movie-alien-1979.

[232] Charles de Lauzirika, *The Beast Within: The Making of "Alien,"* Documentary, 2003. Around timestamp 0:45:00.

so successful was that the audience had a very strong physical, visceral response to the film. He and several producers specifically mentioned that when the robot's head comes off, one of ushers in the theater fainted. At another preview at the Egyptian Theater in Hollywood, people were vomiting as they left the theater.[233]

Scott intentionally designed *Alien* to be scary, gruesome, and intimidating, and Sigourney Weaver, who played Ellen Ripley, saw *Alien*'s aesthetic as the "opposite of 2001," which she thought was "sterile and still."[234] *Alien*, by contrast, portrays outer space as "filthy, greasy, grimy," and John Hurt, who plays Kane, described Scott's aesthetic choices as "realistic" and "logical," suggesting that outer space really was scary.[235] Scott, speaking to *The Hollywood Reporter* in 2019, wanted *Alien* to be the "antithesis of *Star Wars*," and "dirty spaceships in space, used craft that were no longer spanking new and no longer futuristic."[236] In further contrast to such films as *Star Wars* and *Star Trek*, there are far fewer character-driven plot points in screenwriters Dan O'Bannon and Ronald Shusett's screenplay for *Alien*, which instead emphasizes scenes that evoke fear and terror.[237]

Alien takes place deep in outer space on an unnamed moon, which we find out in the 1986 sequel, *Aliens* (dir. James Cameron), is named "LV-426."[238] The human astronauts onboard

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[233] de Lauzirika. Terry Rawlings, Alan Ladd Jr. (former President, 20th Century Fox), and David Giler speaking at 1:39:40.
[234] de Lauzirika. Sigourney Weaver speaking at 1:52:15.
[235] de Lauzirika. John Hurt speaking at 1:55:30.
[236] Davis Weiner, "Ridley Scott on the Hard Road to 'Alien,'" The Hollywood Reporter, May 24, 2019, https://www.hollywoodreporter.com/heat-vision/alien-ridley-scott-reveals-how-iconic-scene-went-wrong-1213109.
[237] Variety Staff, "Alien," Variety, December 31, 1978, https://variety.com/1978/film/reviews/alien-1200424551/. *Variety*'s review of *Alien* actually disliked the screenplay, writing it "has more loose ends than the Pittsburgh Steelers."
[238] David McIntee, *Beautiful Monsters: The Unofficial and Unauthorised Guide to the Alien and Predator Films* (Tolworth, Surrey: Telos Publishing, 2005) states that drafts of the scripts called the planet "Archeron," after the river, a branch of the river Styx.

the cargo ship Nostromo are cruising through space, headed back to Earth, when they receive an unintelligible distress signal from the surface of the moon. They land on the moon, which causes some damage to their shuttle and so they split up into two groups: one that repairs the shuttle and the other that explores the origin of the signal. Dallas, Kane, and Lambert traverse through the rocky landscape and approach an intergalactic spaceship that is damaged and cannot move. The astronauts approach cautiously, and once they get inside, they find that they have stumbled upon an alien spacecraft, with interior walls that seem to be constructed with bones. As they continue to explore the interior of the ship, they find a body of an alien sitting at a control module, except it appears to have been viciously killed with a large opening in its chest. Back on the shuttle, Parker, Brett, and Ripley come to the shocking realization that the message is not a distress signal for help, but actually a warning. Following a gruesome attack, the crew repairs the shuttle and makes its way back to the Nostromo, while finding themselves constantly at odds with the monster as it rapidly grows into a larger, more deadly beast. The alien continuously hunts down the crew throughout the Nostromo and they are finally saved when Ripley disconnects the smaller shuttle from the Nostromo, leaving the alien behind as the cargo ship self-destructs.

Alien's Unusual Design

Lionel Newman, head of Fox's music department at the time, suggested that Goldsmith meet with Scott to discuss the film and see if he might be a good fit. Scott recalled in 1999 that the meeting went well, and Goldsmith was, according to Scott, "immediately enthusiastic about the whole notion, the whole genre and the whole description of the atmosphere."[239] Despite the

[239] Mike Matessino, liner notes to *Alien: Complete Original Motion Picture Soundtrack*: 3.

warm reception at the beginning of their collaboration, the development of *Alien*'s soundtrack was perhaps the most fraught aspect of the film's production, with significant conflict between composer and director.[240] Five years after production ended, Scott admitted that the working relationship between himself and Goldsmith was "stormy."[241] The backstory of *Alien*'s soundtrack and its complicated and disjointed structure allows insight into the not-so-collaborative relationship between Goldsmith and Scott—strikingly different from his working relationship with Schaffner for *Planet*. Evidence of this uneasy relationship between director and composer can be found in the three different musical products from *Alien*'s production: the LP soundtrack, the original score, and the revised score/final cut of the film.

Ridley Scott shared in an interview that the sound and music processing took a total of 20 weeks to complete, which was significant for a film from this time; this long gestation period may be attributed to the constant disagreement between Scott and Goldsmith over which cues were to be used for given scenes.[242] Goldsmith's acrimonious relationship with Scott was exacerbated by sound editor Terry Rawlings, who usually sided with Scott and whose temp track will be discussed below. One of the most prominent examples of their friction involves the beginning of the movie: Scott and the production team expected Goldsmith's music to be far more dissonant and terrifying. Goldsmith's first "Main Title," a stunning cue with a soaring trumpet melody that emphasized the heroic efforts of outer space exploration, was almost

[240] Goldsmith and Scott would later work together on *Legend* in 1985. Scott hired Goldsmith to write an original orchestral score for the movie, which remained with the film through its European premiere. When *Legend* came to the U.S., Scott changed the soundtrack from Goldsmith's score to American pop songs and a synthesized score by Tangerine Dream. Goldsmith's original score returned to the film for the DVD release. The pair also worked together on *Kingdom of Heaven* (2005), another interesting situation in which Scott re-used Goldsmith's score from *The 13th Warrior* (1999) for this film.
[241] Mike Matessino, liner notes to *Alien*, *Alien*, National Philharmonic Orchestra, Intrada, MAF 7102, CD 2007. 3.
[242] de Lauzirika, *The Beast Within*. Ridley Scott speaking at 1:13:00.

immediately rejected. According to Goldsmith, Ridley stated that the score was too romantic, and did not align with the horror-like narrative of *Alien*. Goldsmith spoke about his interaction with Scott about his first "Main Title," saying "It didn't go over too well. Ridley and I had major disagreements over that. So, I wrote a new main title which was the obvious thing: weird and strange, which everybody loved. I didn't love it, and consequently, I kept getting kudos for years after for the main title for *Alien*, which was not exactly my choice." Producer David Giler described the process of reconciling Scott's desires with Goldsmith's musical offerings, saying that "[Scott and other producers] thought it was way too lush, more like *Patton*'s score, which was not really what anybody particularly wanted. He wanted it more haunting and weird and strange, and it wasn't really any of that."[243] Goldsmith detailed his revision process for the "Main Title," saying that the original cue took him about a day to complete, while the revision took him mere minutes.[244]

Several film music scholars and enthusiasts have attempted to sort through the jumbled mess that is the *Alien* film score, resulting soundtrack, and the final cut, but the most comprehensive and authoritative analysis comes from film music editor and producer Mike Matessino. His liner notes on the two-disc set of the complete music from *Alien*, released in 2007, review all the original cues, the rescored cues, the tracks from the 1979 promotional LP, and a variety of demo tracks.[245] Drawing from Matessino's liner notes and from Ed Chang' blog "Cue by Cue," I have created a chart showing the tangled musical structure of *Alien*'s final cut and the commercial LP. Chang's extensive analysis shows specific timings of the cues in the film

[243] de Lauzirika. David Giler speaking at 1:25:00.
[244] de Lauzirika. Jerry Goldsmith speaking, timestamp: 01:20:00.
[245] Mike Matessino, liner notes to *Alien*.

and their ordering. My Tables 2 and 3 combine information from Matessino's liner notes and Chang's analysis, showing which cues were rescored, how those rescored cues were used, which cues made it into the 1979 LP, and which ones were included in the final cut of the film.

Table 2: Cue Structure in Alien's Final Cut

FINAL CUT OF *ALIEN*	DESCRIPTION
"MAIN TITLE"	Revised cue at Ridley Scott's request
"HYPER SLEEP"	Revised cue at Ridley Scott's request
"THE LANDING"	Same music, title, and position from Goldsmith's original score
"MAIN TITLE"	(Same as above)
"THE PASSAGE"	Kept from Goldsmith's original score
"THE SKELETON"	Kept from Goldsmith's original score
"THE TERRAIN"	Combination of original and revised versions, also includes some of the "Main Title" revision
"HANGING ON"	Revised cue at Ridley Scott's request
"MAIN TITLE," FROM *FREUD*	Temp track music selected by Ridley Scott from Goldsmith's score for *Freud* (1962)
"THE LAB," AND "EINE KLEINE NACHTMUSIK"	Kept from Goldsmith's original score; Temp track music selected by Ridley Scott
"THE LANDING"	Kept from Goldsmith's original score
"NOTHING TO SAY"	Kept from Goldsmith's original score
"CATNIP"	Kept from Goldsmith's original score
"HERE KITTY"	Kept from Goldsmith's original score
"MAIN TITLE/DESPERATE CASE/CHARCOT'S SHOW," FROM *FREUD*	Temp track music selected by Ridley Scott from Goldsmith's score for *Freud* (1962)
"HERE KITTY"	Kept from Goldsmith's original score
"IT'S A DROID"	Kept from Goldsmith's original score
"THE FIRST STEP," FROM FREUD; "THE PASSAGE" (FRAGMENT)	Temp track music selected by Ridley Scott from Goldsmith's score for *Freud* (1962); kept from Goldsmith's original score
"PARKER'S DEATH"	Kept from Goldsmith's original score
"SLEEPY ALIEN"	Kept from Goldsmith's original score
"TO SLEEP"	Kept from Goldsmith's original score
"THE CUPBOARD"	Revised cue at Ridley Scott's request
"OUT THE DOOR"	Revised cue at Ridley Scott's request
SYMPHONY NO. 2, MVT. 1, HOWARD HANSON	Temp track music selected by Ridley Scott; eliminated Goldsmith's original "End Title"

Table 3: Cue Structure in Alien's 1979 LP Record

***ALIEN*'S 1979 LP RECORD**	**SOURCE MUSIC**[246]
"MAIN TITLE"	Kept from Goldsmith's original score; shortened ending
"FACE HUGGER"	Combination of "Hanging On" and "Parker's Death"
"BREAKAWAY"	"Out the Door"
"ACID TEST"	"Out the Door" (revised); "Hanging On" (revised); "Hanging On" (original)
"THE LANDING"	Same as the original
"THE DROID"	Combination of "It's A Droid," and "Nothing to Say"
"THE RECOVERY"	Combination of "Sleepy Alien" and "To Sleep"
"THE ALIEN PLANET"	Crossfade from "The Skeleton" (revised) to "The Skeleton" (original)
"THE SHAFT"	Kept from Goldsmith's original score
"END TITLE"	Kept from Goldsmith's original score

I notice several puzzling details in my analysis: all the rescored cues were used in the final cut of *Alien*, but none of them made it onto the 1979 LP. The tracks on the LP are predominantly composed of standalone cues or mixtures of two or more cues from the original score. This fact forces me to consider what the purpose of the LP was and why it was so incongruous with the music that one would hear when watching the film. Marketing likely played a role in this decision, as the revised "Main Title" did not carry the soaring melody of the original, which is the version that is heard on the LP. The LP is also much shorter than the cinematic version, just over 35 minutes compared to 57 minutes in the film, in part due to physical recording limitations. But the main reason for the incongruence between the LP and the film is that the LP was created entirely by Goldsmith, highlighting the original score in the way he wanted. Many of the tracks are combinations of cues from Goldsmith's score, giving listeners an abridged overview of his entire original soundtrack, and Matessino suggests the LP sparked

[246] Ed Chang provides specific timings in his blog, "Cue by Cue" (http://cuebycue.blogspot.com/2016/02/alien-goldsmith-1979.html).

debate among film music fans about how Scott and the rest of the producers treated Goldsmith's music.[247] Despite Goldsmith's goal to recreate his intentions, a confusing element of this chart is that the ordering of tracks on the LP does not seem to logically track with the original score or the final cinematic version. The third track of the LP, "Breakaway," is a retitling of "Out the Door" from the original score, which is interestingly dovetailed with "Hanging On" from the original to create the next track on the LP, "Acid Test." The third cue from the original score, "The Landing," comes fifth on the LP, after two tracks that are comprised of cues from very late in the original score.

These tables also demonstrate just how much Scott valued some of his own contributions to the music through his temp tracking. The final cut of the film shows several additions, including some music from *Freud*, but also Howard Hanson's Symphony no. 2, movement one, and fragments of Mozart's *Eine kleine Nachtmusik*. David Giler spoke directly about the process of creating the temp track, saying, "we bought a couple of Goldsmith's pieces we had in the temp and then in the dub. In the mix, we really played down a lot of his stuff and played up some of the weird sounds we had." Giler then suggested, "it was really Ridley, when I say "us" I really mean Ridley."[248] The inclusion of Hanson's Symphony no. 2 must have angered Goldsmith tremendously because it was the last cue from the final cut of the film, effectively eliminating his "End Title" cue, which does reappear on the LP. Rich, consonant harmonies and a powerful French horn solo pervade the fragment from Hanson's "Romantic" symphony, making it a suitable choice for the mood at the end of the film, with the crew narrowly escaping certain

[247] Mike Matessino, liner notes to *Alien: Complete Original Motion Picture Soundtrack*: 9.
[248] de Lauzirika, *The Beast Within*. 1:25:00. Scott and Rawlings went behind Goldsmith's back to get the rights to use his music from *Freud* in the temp track, which was hugely upsetting to Goldsmith.

death. Goldsmith's original "End Title" begins with a reprise of the "Main Title" opening, though after the trumpet solo, Goldsmith eschews most of the dissonant sections for a stirring, late romantic melody that I think similarly symbolizes the successful survival of the crew as they fly away from the now dead alien. Sound Editor Terry Rawlings may have decided to retain Hanson's Symphony no. 2, which was used without his permission (also upsetting Hanson), because of its consistent, unwavering conventional romantic sound, whereas Goldsmith's "End Title," retains the dissonant opening and some minor dissonance at the end.[249]

In *The Beast Within,* Rawlings addressed Goldsmith's response to his addition of Hanson's Symphony no. 2 but attempted to vindicate himself from any wrongdoing: "I don't think he ever forgave me for using Howard Hanson for the end of the film and keeping the music that he wrote for *Freud* in the film. That was Fox's decision. They could have said, 'we're using the music that's written,' but I do think that what we did on a temp in those areas was better than what he did. And I'm taking nothing away from the rest of the film because what he did was perfect for it."[250] At another point in the documentary, Rawlings said, "I must say at times, there are areas you can get to work better than they do later, and that's not degrading anything composers do, but I don't think anybody is closer to the film than the director and the editor will ever be." When faced with music from the composer, they might feel the temp track they created matches their goals better than what the composer has provided.[251] (This relationship between director, sound editor, and composer, and the role of the temp track in the

[249] David McIntee, *Beautiful Monsters: The Unofficial and Unauthorised Guide to the Alien and Predator Films* (Tolworth, Surrey: Telos Publishing, 2005). 38.
[250] de Lauzirika, *The Beast Within*. Terry Rawlings speaking at 1:24:30.
[251] de Lauzirika. Rawlings speaking at 1:22:15.

final cut of the film is even more perfectly exemplified in *2001: A Space Odyssey* (1968), which I will discuss at greater length in the Conclusion of this dissertation.)

Despite the frequent disagreement and conflict between them, Ridley Scott was an ardent supporter of Goldsmith and loved his music, even for *Alien,* of which he said, "Jerry Goldsmith's score is one of my favorite scores. Seriously threatening, but beautiful. I mean, it has beauty, darkness—seems to play the DNA of some distant society."[252] In fact, in constructing the temp track, Scott and his collaborators gravitated toward Goldsmith's music from previous films. The film music that Scott was drawn to the most was *Freud* (1962), which, interestingly, is a serialist score. Goldsmith recalled his discovery of the *Freud* film score in *Alien,* saying "everybody thought, 'Oh look how wonderful that music works.' I said it stinks, it's all wrong. It was a little lullaby I had written for *Freud.*"[253] Even more problematic is that Scott and the production leadership kept several of the *Freud* cues in the final cut without Goldsmith's permission. The music that was kept from *Freud* includes "Main Title," "Desperate Case," "Charcot's Show," and "The First Step." This is a significant amount of music from *Freud,* but it is condensed into just two scenes. While the rest of the cues from this soundtrack do not appear to have any serialist qualities, these cues stand out from the rest of the score, as the compositional approach that Goldsmith took for *Freud* was vastly different from that of *Alien.*

Timbre, Dissonance, and *Alien*'s Vision of Outer Space

Strange, unconventional timbres and pervasive dissonance are two defining features of Goldsmith's underscoring for *Alien* and are a significant factor in establishing the anxiety created by Ridley's galactic setting and the unfriendly extraterrestrials that the crew encounters.

[252] de Lauzirika. Ridley Scott speaking at 1:19:38.
[253] de Lauzirika. Jerry Goldsmith speaking, timestamp: 01:25:25.

However, the film's final soundtrack arrangement shows that there are some key differences between Scott's and Goldsmith's approach to the emotional content of *Alien*. It is clear that Scott wanted to enhance the film's horror elements from the very beginning while Goldsmith began with a romantic vision of space that preceded the horror later in the film. Scott's controlling hand resulted in a dramatically different soundtrack, as I have already shown, but it also had a major impact on the way we read the landscape and setting of *Alien*. I argue that Goldsmith uses a wide variety of timbres to create a highly unusual soundworld that matches the foreignness of the environment and the extraterrestrials the crew meets during their "rescue" mission. Goldsmith played with a variety of sounds and timbres, including aleatoric gestures and extended techniques on conventional orchestral instruments, to composing for instruments not often found in the Hollywood orchestra, such as steel drums, conch shells, didgeridoo, and serpents. His approach to orchestration here appears similar to *Planet*, though it seems his aims were different. In *Planet*, Goldsmith is clearly searching for instruments that support the balance of technology and primitivism, but in *Alien*, the interesting timbres seem to be ends in themselves, rather than being used symbolically. In addition to the unusual orchestration, Goldsmith composed a score with motifs built using dense cluster chords and harsh dissonances, with the tritone being the preeminent structural interval.

The two contrasting versions of *Alien*'s "Main Title" music offer an excellent starting point for analyzing Goldsmith's decisions regarding timbre and pitch. The opening title sequence of the film shows the audience a slow pan of outer space with a planet in the background. The Nostromo cargo ship appears only at the end of the credits; thus, the setting is the primary focus of this opening scene, showing the isolation in outer space and the far distance from Earth, the home of the Nostromo ship. Goldsmith's first version vacillates between a

stunning, romantic vision of outer space, identifiable by its soaring trumpet melody, and sections that are dominated by dense, dissonant cluster chords sustained by the strings. Goldsmith's cue nails several of *Alien*'s main messages, especially the contrast between the heroic and the horrifying. In the documentary, *The Beast Within,* Goldsmith explained his choices:

> I always think of space as being the great unknown, not as terrifying, but questioning and there's an air of romance about it. That's why I like doing *Star Trek* because it's very romantic and it paints space that way instead of all the weird things and all that. And I guess I approach *Alien* that way. There was this air of mystery but there was sort of a beauty to it, and the unknown and I thought, "well you know what let me play the whole opening very romantically and very lyrically, and then let the shock come as the story evolves. In other words, don't give it away in the main title. So, I wrote this very nice main title. There was this sort of mystery, but it was lyrical mystery.[254]

Dissonance aside, this cue did not do much with unusual timbres; the few noisy sounds are overshadowed by mostly conventional sounds from the orchestra. Several critics have praised this original cue, and in writing about the 2007 Intrada two-CD set, Darren Charlton applauded the decision by Intrada Records to keep Goldsmith's original cue on the main soundtrack. Charlton echoed Goldsmith's sentiments about the "Main Title," stating that "the journey the original score takes in its descent from misleading romance [to] percussive dissonance then back to tonal resolution is nothing short of astounding."[255] Later in his review, he credits Goldsmith for a successful score, writing, "Goldsmith avoids easy signposting with a theme that captures both the beauty of space and a feeling of endurance to reflect the crew's passage through it."[256] Charlton compared this "Main Title" with those of Goldsmith's contemporaneous scores from *Capricorn One* and *Magic*, saying *Alien*'s original "Main Title" displays "a richer, more timeless symphonic

[254] de Lauzirika. Jerry Goldsmith speaking, timestamp 1:20:07.
[255] Darren Charlton, "Alien," Jerry Goldsmith Online, 2007, http://www.jerrygoldsmithonline.com/alien_review.htm.
[256] Charlton.

sound that would characterize classics such as *Poltergeist* and *The Final Conflict*."[257] The original "Main Title" cue aptly reflects the beautiful mixture of consonance and dissonance evokes the sense of natural majesty visible in the planetary rings in the background, reinforced by the romantic trumpet melody and the lush string harmonies, and the emptiness and isolation has an air of mystery and danger, complemented by the unusual timbres and more dissonant sections of this underscoring.

Heeding Scott's request for a different sound, Goldsmith did rewrite the "Main Title," and he did so quickly, this time doing "the obvious thing: weird and strange, which everybody loved."[258] The second version is far more haunting and terrifying. Any semblance of lyricism has vanished, and the lush, late romantic harmonies have been replaced with eerie timbres, including aleatoric instructions for the violins to play the highest note possible, *col legno battuto*, and rough *pizzicato*, altered by the Echoplex. Though there are some shared elements between the versions, they are essentially worlds apart and the revision emphasizes horror and trepidation from the outset of the movie. One of the more arresting features of this cue is how it highlights the Echoplex, noticeably absent from the original, and how it transforms sounds from traditional orchestral instruments with a simple tape delay or reverb. As I have shown in *Planet of the Apes*, the Echoplex is a transformative instrument that has a strong auditory effect, and in this example from *Alien*, the Echoplex reaffirms the identity of the score as one that belongs with science fiction, but it also helps to literally create the space that is on display in the images of the opening scene. The static noise from the wind machine at the very beginning of the film colors outer space as more ominous and threatening, and the Echoplex's sound effect amplifies the

[257] Charlton.
[258] de Lauzirika, *The Beast Within*. Goldsmith speaking on his score for *Alien*, timestamp 1:20:15

distance from Earth and the endless void of outer space. Wind is another ecological element in Goldsmith's score. The wind machine in the "Main Title" can be read as a more literal sound effect as opposed to the conch shells and serpent, or the "swoosh of air" effect from *Planet*.[259] Though Goldsmith downplayed his effort in revising this cue, his second version brilliantly accomplishes the mood setting that Ridley Scott was aiming for with this opening scene.

To effectively convey the experience of deep space environments, Goldsmith embraced the quasi-acousmatic effect for the various timbres of *Alien* score. The acousmatic effect defamiliarizes what the listener hears, and the impact of this sonic defamiliarization contributes to the feelings of apprehension and fear expressed by the astronauts. Some of those timbres are exhibited in the spaceship landing sequence, as we witness the crew hike through the dark and foggy alien terrain. We see the alien moon off in the distance as the crew, guided only by the light of their spacesuits, carefully moves through the rocky and desolate terrain on their way to the spaceship that is embedded in the rocky surface just off in the distance. The cue that Goldsmith originally intended for this scene, "The Terrain," opens with a soft and sustained A♭ in the lower middle register, which is followed by a repeated dissonant motive in the woodwinds and basses, interrupted briefly by muted French horns, bassoons, and percussion. The middle section is notable for its use of the Echoplex with violins and a steel drum, concocting an air of terrified premonition about the treacherous lunar landscape, strikingly different from the more intellectual uncertainty about the astronauts' location in "The Searchers" from *Planet*. The cue

[259] Goldsmith used Pacific and Indian conches of various sizes to create the sound of wind moving through the alien landscape, including. In the beginning of the cue "Hanging On," a large Indian conch shell is paired with a serpent, sustaining an E for four measures, with flutter tonguing on the conch shell.

closes with a return to the musical material from the first section and ends with a harmonic gesture in the brass section—a D major chord that diminishes gradually into silence.

By titling this cue "The Terrain," Goldsmith invites us to connect his music directly to the environment visible on screen. As originally written, this cue would have been tremendously successful because the sustained A♭ and the repetitive motive in the woodwinds and low strings would have reflected the openness of the landscape, compounded by the Echoplex for the high strings and the eerie timbres of the steel drums. The repetitive motive that we would have heard in the woodwinds is what film music blogger Ed Chang calls the "alien" motif, which I will discuss below. Understanding this cue with the "alien" motif in mind, it sounds as if Goldsmith is foreshadowing, or hinting, at the looming danger of aliens inside the ship that put out the distress signal. In reviewing this scene in the final cut of the film, instead of "The Terrain," we actually hear material from the (revised) "Main Title" again, which also has a strong but different sonic impact on our perception of the lunar landscape. While the "Main Title" was used to great effect for the terrifying openness of outer space, it works equally well here to illustrate the bleak, rocky surface of the moon, once more relying on the timbres from the wind machine and the aleatoric sections and extended techniques for the strings. The music Goldsmith wrote for "The Terrain" does make an appearance in the final cut of the film, where it is used as the crew discovers the egg hatchery located inside the ship. Because "The Terrain" is largely made up of repetitions of the "alien" motif, using it for the hatchery works well, reflecting the presence of many extraterrestrials. Being a part of this ecology, the alien is the main existential threat to the astronauts, and Goldsmith's music emphasizes how it emerges as a manifestation of the surrounding environment. The sound of the alien is very distinct: it is a combination of several

instrumental "growls" coming from the bassoons and conch shells. These instruments are often supported by the didgeridoo and serpent, which are more frequently used for their uncanny timbres than their melodic capabilities. This rough and scratchy timbre sounds like the alien's screech as it stalks the crew throughout the entire second half of the movie. Survival and endurance are the only options for the astronauts; no longer viable are conquest and exploration.

Whereas serialism was the foundation for pitch arrangement in *Planet*, with *Alien*, Goldsmith opted for harsh dissonances to construct several of the musical motifs that recur throughout the score. Goldsmith's decision to combine his avant-garde harmonies with a more contemporary thematic construction is fascinating, considering that many of the films surrounding *Alien*'s premiere, such as *Star Wars* and even his own *Star Trek*, used scores that returned to the more conventional style of film composing, relying heavily on melodic and harmonic language from the Romantic era. This new, "postmodern" era of film music history also brought back a thematic structure, which Julie Hubbert states had largely been supplanted in the 60s and early 70s by popular music, jazz, and avant-garde techniques.[260] Musicologist James Wierzbicki, citing the work of Lawrence MacDonald, also viewed the 1970s as a decade of change, which largely revolved around the "revival" of the large, conventional symphony orchestra.[261] Although this return to conventional Hollywood scoring might seem to link Goldsmith's score for *Alien* with John Williams and the *Star Wars* franchise, in fact differences in style set the two composers apart, as Goldsmith was keen to point out. In *Alien*, there are several cues that exhibit pervasive dissonance to reflect the drama, setting, and the genre of science

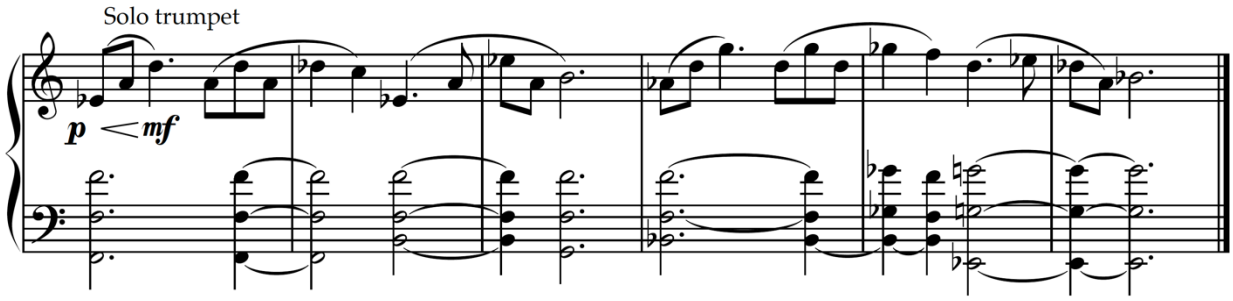
[260] Julie Hubbert, "Celluloid Symphonies Texts and Contexts in Film Music History," 2011: 11.
[261] James Wierzbicki, *Film Music: A History* (New York: Routledge Taylor & Francis Group, 2011): 189.

fiction and horror. We can see this most clearly in the four musical motifs that pervade Goldsmith's score.

While Goldsmith did not directly mention or label them in his score or sketches, he connected certain musical themes with specific actions, objects, and places. Film music blogger Ed Chang, the creator of the blog, "Cue by Cue," identifies Goldsmith's four main themes and names them based on their implementation in the score: "Main Title," "Space," "Alien," and "Stalking."[262]

The romantic "Main theme" motif can be heard almost immediately in Goldsmith's original "Main Title," cue played by the trumpet. The motif opens with three rising notes, E♭, A, and D, and this pattern is repeated several times throughout the phrase.

Example 7: "Main Title" motif from Alien



This motif masquerades as an epitome of late romantic melody, especially with Goldsmith's choice of a soaring, lyrical solo trumpet, but dissecting it into discrete intervals reveals that it is much more dissonant than expected. The construction of the first three notes in the melody is generally consistent in each phrase, with the first two notes separated by an augmented fourth and the second and third by a perfect fourth, though the interval between the second and third

[262] Ed Chang, "Alien (Goldsmith, 1979)," *Cue By Cue* (blog), accessed July 19, 2019, http://cuebycue.blogspot.com/2016/02/alien-goldsmith-1979.html.

notes is sometimes extended to another augmented fourth. On first hearing, this trumpet melody is perfect for Goldsmith's vision of outer space: it carries the adventurous spirit and romanticism that he envisioned for any journey to outer space. However, analyzing the interior harmonies and intervals reveals a foreshadowing of the "shock" Goldsmith alluded to in his vision of space music: the heroic expedition might have a dangerous path ahead.

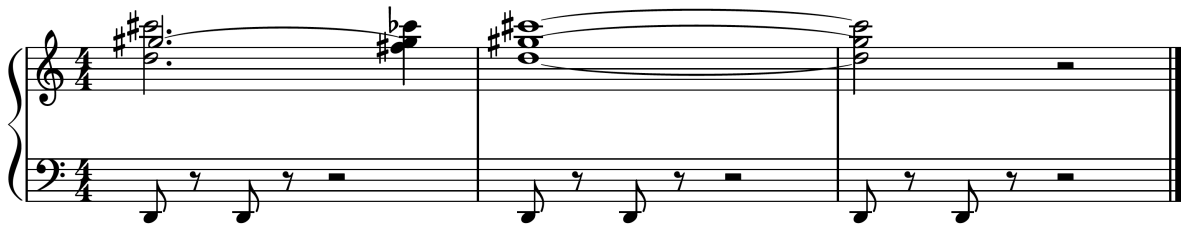
The haunting music that immediately follows the conclusion of the melody confirms the "shock" that Goldsmith describes. The underscoring dramatically morphs into much harsher and dissonant cluster chords throughout the entire orchestra, along with several noisy timbres, like growling bassoons, clanging percussion, and wailing horns. The foreshadowing element of Goldsmith's "Main Title" perhaps begins even before the trumpet melody enters. Mike Matessino finds several tritone intervals in the cluster chord at the beginning of the cue, which he suggests is Goldsmith's method for creating contrast between *Alien* and *2001: A Space Odyssey*. The sustained chord in the string sections that opens the "Main Title" cue is a stacking of C-D-E-G♭-A♭-B♭. There are three tritones that structure this chord, C-G♭, D-A♭, and E-B♭, which Matessino argues stands in opposition to Richard Strauss's *Also Sprach Zarathustra,* which emphasizes perfect harmonies with C-G-C.[263] The C-G-C of *Zarathustra*'s famous introduction (with its subtitle, "Sonnenaufgang") is often paired with a sunrise in the image track, as is the case in Kubrick's 2001. In this context, the C-G-C of Strauss's "Introduction" recalls the overtone series, the natural harmonic structuring of pitch, and is symbolic of the organicism in Kubrick's audio-visual pairing and Strauss's illustrative tone poem. Considering pastoral musical tropes, where fifths and fourths are common, Goldsmith's choice to use the tritone is indicative

[263] Mike Matessino, liner notes to *Alien: Complete Original Motion Picture Soundtrack,* composed by Jerry Goldsmith, conducted by Lionel Newman, performed by the National Philharmonic Orchestra, Intrada, CD, 2007: 11.

of just how different this ecology is from the pastoral. By changing the interval to a tritone, Goldsmith creates the antithesis to Strauss's sunrise, which is paired visually with the vast darkness of outer space.

The "Main Title" cue also contains the "alien" motif, which recurs frequently in the underscoring, including in the cue "The Terrain." It comprises two dissonant chords, one long followed by a short chord, then returning to the first, both constructed with a mixture of minor seconds, major sevenths, and tritones, again showing just how pervasive the tritone is in this score. In total the motif is just three measures long.

Example 8: "Alien" motif from "The Terrain," measure 2

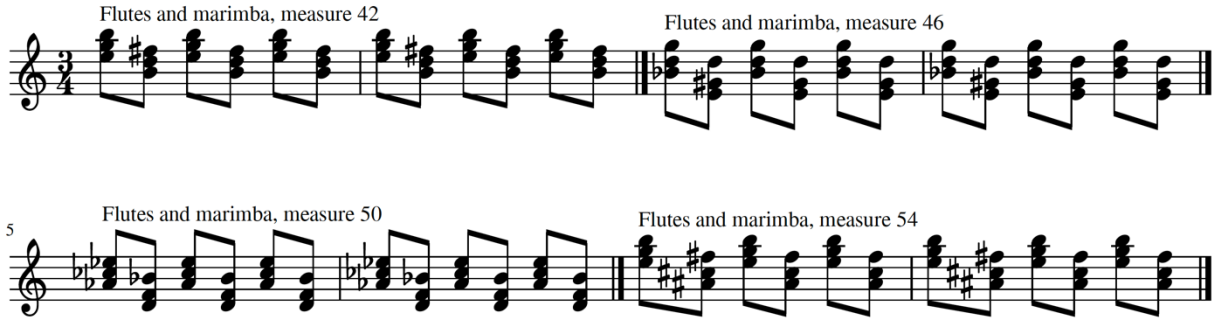


The first chord (dotted half note) consists of a tritone and a perfect fourth, D-G♯-C♯, which is succeeded by a quarter note chord of F♯-G♯-B. The upper voices then return to the first harmony, sustaining for six beats. The bass ostinato features a low D2 on beats one and two in the cellos and basses, which repeats in each of the three measures. Most often the upper harmonies are softly played by woodwind instruments, especially clarinets, while the cellos and basses always play the ominous bass ostinato on D2. The combination of the soft dynamics, the subtle, airy sound of the clarinets, and the creeping bass ostinato establish the threat of the environment and the alien.

The fearful emotions and suggestive quality of the "alien" motif are most prominent in "The Terrain," pointing toward the potentially dangerous situation that the astronauts will soon encounter. This motif also underscores the alien egg hatchery scene, due to Scott and Rawlings's rearrangement, and is surprisingly successful in the scene, taking advantage of the portentous feelings of the motif, foreshadowing the future threat of the alien that hatches from the egg. The repetitious "alien" motif in "The Terrain" also has ecological implications. Repetition is a common musical technique used in pastoral music to symbolize stasis. The droning bagpipes and lilting rhythms of Mozart's pastoral music, for example, suggest natural cycles and shepherds' dances. Here, however, where the ostinato is a dissonant one, its repetition builds up an almost unbearable feeling of suspense.[264]

The "space" motif is a combination of two minor chords whose roots are often separated by various dissonant intervals. They bounce back and forth, always processed by the Echoplex. This short, repetitive cue is typically extended through modulation of the harmonies. The first appearance of the "space" motif is in the closing portion of the original "Main Title."

Example 9: "Space" motif from Alien's "Main Title"



[264] Wye J. Allanbrook, "Human Nature in the Unnatural Garden: Figaro as Pastoral," *Current Musicology*, Nature and Convention: *The Marriage of Figaro*, no. 51 (1993). Musicologist Wye J. Allanbrook finds these tropes in Mozart's "country music" musettes that appear in his opera *The Marriage of Figaro*.

The two chords, played by flutes, alternate on eighth notes between E minor and B minor before fading away (later iterations of this motif modulate through different keys, intervals, and inversions). Goldsmith composed the "Space" motif in the original "Main Title," cue without the Echoplex, but then introduced it in his revision to add a long echo to the flutes. The echo effect from the Echoplex accentuates the space-making power of this motif, which is particularly effective in the revised "Main Title," where it is paired with dark images of outer space. Ecologically, the Echoplex is a significant addition in Goldsmith's revision. Echoes, which are another key element of pastoral music, literally symbolize the spaciousness of an environment. The bucolic sounds of the pastoral environment in eighteenth- and nineteenth-century scores suggested refuge from the harsh sounds of the urban world. However, in *Alien,* the echo characterizes the vast emptiness of the outer space environment, particularly on the surface of the planet, which is undoubtedly uninhabitable.

Goldsmith frequently stated that Scott wanted him to be a visual composer, but Goldsmith resisted by say that he was an emotional composer. He said, "the message I was getting from [Scott] was he wanted me to be visual with the music." He continued, "Well, I can't be visual with the music; that's not what I'm supposed to do. Let the director and the cinematographer put the visuals on the screen, let me do the emotional element."[265] Indeed, much of his music echoes the emotional content of *Alien,* striking fear, agitation, and anxiety in the listener. Goldsmith similarly underscores the emotional content in *Planet,* evoking the crew's confusion about the planet's identity and the constant struggle between the humans and the apes. Despite Goldsmith claiming to solely focus on a film's emotional content, I argue that the

[265] Mike Matessino, liner notes to *Alien: Complete Original Motion Picture Soundtrack*: 3. Goldsmith then stated that he believed this was the crux of his poor relationship with Scott.

ecologies of both *Planet* and *Alien* are also present in Goldsmith's underscoring, especially considering the defamiliarizing effect of his instrumental and timbral choices, how serialist rows represent the world turned upside down in *Planet*, and how pervasive dissonant modifications to pastoral musical tropes in *Alien* reflects an environment antithetical to the traditional pastoral.

Considering the Cold War undercurrents during these decades, both films share similar anxieties about space exploration, manifesting through popular media many of the reservations expressed by Americans about the true prospect of outer space. Writing about popular music and outer space during the Cold War, musicologist Gabrielle Cornish writes that rather than keeping outer space as an avenue for scientific gain, "the unfathomability of space gave way to possibilities of conquest and colonization."[266] As opposed to the conquest and colonization of the 1950s, which survived (briefly) under the guise of scientific progress, the idea of conquest and colonization in the 60s and 70s appeared in a more frightening light following the success of Sputnik and the potential for the Soviet Union to deploy nuclear missiles to the United States. It is possible to read the alien as representative of the Soviets in space, threatening the existence of Americans through violence. It is also possible to read Goldsmith's serialism as being actively pro-Western, especially with its distinctly American style, which often abandoned strict rules and structure, standing in opposition to the Soviets through music that was banned in communist countries.[267] Lastly, both films reveal the dangers of space exploration and the

[266] Gabrielle Cornish, "The Long, Lovely History of Music and Space Exploration," Slate Magazine, February 21, 2019, https://slate.com/technology/2019/02/mars-opportunity-rover-billie-holiday-space-music-history.html.
[267] Michael Harris, "Serial Apes: Jerry Goldsmith as American Serialist," forthcoming. "Part of the problem is that while Goldsmith uses serial processes to construct the music, he does not follow and strict rules that are associated with the original rules of serial music; freely repeating notes and selecting small cells from the matrix, especially when writing the accompanying parts in the score. In other words, Goldsmith is not a strict serialist in the sense of composers like Milton Babbitt or Pierre Boulez, and instead used the sound of a twelve-tone row and its matrix as one more color in his palette."

potential pitfalls of technology and its ecological implications: technology brought humans to planets deep into space, but it also put them face to face with unwelcoming extraterrestrials and it established an environment that was fraught with weaponized technology that threatened the very existence of humanity.

The latter half of the 1970s became an inflection point for sci-fi composers like Goldsmith. Although his experimental style was well-suited for the genre and worked marvelously for *Planet* and *Alien*, he had his own ideas about outer space that were more romantic, as we saw through his initial main title music for *Alien*. Though commercially successful and effective with its score and sound design, in retrospect *Alien* stands out among other film scores from this period as far more avant-garde. This avant-garde status appears in sharp relief when set against the music that John Williams composed for both *Star Wars* and *Close Encounters of the Third Kind*. Indeed, following those two films, sci-fi in Hollywood changed dramatically, with nearly everyone, even Goldsmith, following in Williams's neoromantic footsteps.

Chapter Four: Sci-Fi's Return to Convention

"To Boldly Go Where No Man Has Gone Before" – Goldsmith's *Star Trek* and the Beginning of a "New" Era of Sci-Fi

Sci-fi through the 1960s enjoyed significant cinematic popularity. Box office sales set new records year after year and the number of sci-fi movies produced each year continued to climb from its Golden Age in the 1950s. The end of the 1960s marked perhaps the peak of the genre's development, heralded by two landmark sci-fi movies, *2001: A Space Odyssey* and *Planet of the Apes.* At the turn of the decade, however, the production of sci-fi films suddenly dipped dramatically. There were myriad reasons for this. For one thing, the US entered an economic recession in 1969, during which major film studios collectively lost upwards of $200 million.[268] On a deeper level, however, writing about *Star Wars* in particular, Emilio Audissino has suggested that sci-fi as a cinematic genre was out of fashion in the 1970s, thus stoking doubt among directors and producers that these movies would be profitable, which was much more important during the recession period.[269] Film music professor Joan F. Dean similarly observed that, between *2001* and *Star Wars,* commercial success for sci-fi films was extremely limited, and regardless of their commercial viability, "even fewer seemed memorable."[270]

Highlighting the severity of the situation, Dean described a "dearth of science fiction films produced between 1970 and 1977," and pointed out that the most notable of the period—*Planet of the Apes* sequels, *THX 1138* (1971), *Soylent Green* (1973) and *Logan's Run* (1976; film

[268] David A. Cook, *Lost Illusions: American Cinema in the Shadow of Watergate and Vietnam, 1970-1979*, History of the American Cinema; v.9 (New York: Charles Scribner, 2000). 9.
[269] Emilio Audissino, *John Williams's Film Music: Jaws, Star Wars, Raiders of the Lost Ark, and the Return of the Classical Hollywood Music Style* (Madison, Wisconsin: University of Wisconsin Press, 2014). 69–70.
[270] Joan F. Dean, "Between 2001 and Star Wars," *Journal of Popular Film & Television* 7, no. 1 (July 2010): 32–41, https://doi.org/10.1080/01956051.1978.9944190. 32.

score by Jerry Goldsmith)—all had noticeably dystopian narratives. *Soylent Green* and *Logan's Run* received mixed reviews from critics and audiences, with many commenting that the narratives were less interesting than what they expected from sci-fi. They were not *bad* movies—Roger Ebert gave both three out of four stars—but they were far less popular than sci-fi films from the end of the 1960s. All indications suggested that sci-fi in Hollywood was becoming a stale genre. Charles Lippincott, George Lucas's publicity supervisor, commented on the unpopularity of sci-fi at the time, saying, "Kubrick's *2001* didn't break even until late 1975—and that was the most successful science fiction film of all time." He added, "You had to be crazy to make a science fiction film when we wanted to."[271]

In the latter half of the 1970s, however, sci-fi showed signs of new life beginning with *Star Wars: A New Hope* in 1977, and *Alien* and *Star Trek: The Motion Picture* in 1979. These two films kickstarted sci-fi's cinematic revival and boosted its popularity far beyond what it had previously achieved. At its core, the genre returned to more conventional storytelling—Roger Ebert described *Star Wars* as "a fairy tale, a fantasy, a legend, finding its roots in some of our most popular fictions."[272] In addition to enjoying more traditional narratives, audiences also heard more familiar musical treatments. For the last two and a half decades, film composers had looked to sci-fi as an arena almost purpose-built for musical and sonic experimentation. But in the late 1970s, sweeping, romantic, orchestral soundtracks, paired with the evergreen stories of the triumph of good over evil (and some of the biggest budgets in Hollywood history) attracted massive audiences nationwide and spawned, alongside *Planet of the Apes,* the most successful sci-

[271] J. W. Rinzler and Charles Lippincott, *The Making of Star Wars: The Definitive Story behind the Original Film* (New York: Ballantine Books, 2007). 105.
[272] Roger Ebert, "Star Wars Movie Review," https://www.rogerebert.com/, January 1, 1977, https://www.rogerebert.com/reviews/star-wars-1977.

fi franchises ever. Ironically, as major musical figures in sci-fi's grand revival in the late 1970s, Goldsmith and Williams "boldly" revisited conventional scoring techniques.

In this chapter, I investigate this fundamental shift in compositional approach in the late 1970s and examine how the classical Hollywood style provided a familiar entry point for audiences to experience distant places, diverse beings, and futuristic technology. I open this chapter with Goldsmith and his music for *Star Trek*, creating a juxtaposition between this more conventional score and *Alien,* which premiered earlier in the same year. Through this comparison I suggest that Goldsmith saw romantic scoring as an effective device for *Star Trek*'s narrative design and a welcome return to his vision of outer space as adventurous and romantic. Furthermore, I examine how *Star Trek*'s sound effects, comprised of organic sounds processed with state-of-the-art technology, illustrate Goldsmith's ongoing desire for new and interesting sounds, and how these sound effects mirror the mechanical-biological binary present in the movie.

In *Star Trek: The Motion Picture*, the first offering in the *Star Trek* cinematic franchise, we join the classic cast of James T. Kirk (William Shatner), Spock (Leonard Nimoy), Hikaru Sulu (George Takei), Montgomery Scott (James Doohan), Nyota Uhura (Nichelle Nichols), Leonard McCoy (DeForest Kelley), and Pavel Chekov (Walter Koenig) in the 23rd century. As they resume their work on the USS Enterprise fending off violent alien invaders, a Starfleet station detects an unusual cloud shrouding an alien ship heading toward Earth, easily destroying allied ships in its way. Alerted of this imminent threat, Kirk seizes command of the Enterprise and races to intercept the aliens. Once the Enterprise reaches the cloud, the alien ship attacks and infiltrates the Enterprise. The aliens capture Ilia, the Enterprise's navigator, and replace her with a robotic doppelgänger, named "V'Ger." Attempting to learn more about the enemy, Spock uses

his telepathic powers to discover that the alien ship has biological properties and at the center of the ship is the space probe Voyager 6. The aliens who captured V'Ger discovered that V'Ger's creator programmed it to gather as much information as possible before returning home. Instead of releasing V'Ger, the aliens modified it to achieve near-sentience, harnessing its power to conquer space. For the last step of V'Ger's mission of transmitting all the information it has gathered to its creator, V'Ger merges Ilia with a crewmember, Decker. In a bright burst of light, V'Ger explodes, Decker and Ilia disappear, and Kirk and Spock wonder if they have just witnessed the evolution of a new life form. With the Enterprise and the rest of the crew unharmed, the crew set off on their next adventure.

Goldsmith's connection to the *Star Trek* franchise dates to the earliest days of the original television series from 1966 to 1969. Gene Roddenberry, the creator of *Star Trek*, hired Goldsmith to compose music for the pilot episode, "The Cage," but Goldsmith was unable to accept the job because of a calendar conflict.[273] The television series was moderately successful but canceled after just three seasons due to low viewership. The series did regain popularity during the early 1970s as reruns reached broader audiences, who formed cult-like followings comprised of "trekkies."[274] Capitalizing on the renewed popularity of the franchise, Robert Wise took up direction of the motion picture. Keeping close to Roddenberry's original wishes, Wise offered Goldsmith the chance to revisit the franchise, and he continued to compose for five *Star Trek* motion pictures in the years that followed.[275] Though Goldsmith had already achieved

[273] Getman, "Music, Race, and Gender in the Original Series of Star Trek (1966-69)." 39.
[274] Doug Shult, "Cult Fans, Reruns Give 'Star Trek' an Out of This World Popularity," *The Milwaukee Journal*, July 5, 1972.
[275] Roddenberry also served as a producer for the motion picture. Alexander Courage, who composed the original *Star Trek* theme, and Fred Steiner, also contributed cues to TMP's soundtrack. Goldsmith's role as composer for the motion pictures was intermittent prior to the 1990s and 2000s, when he composed his third, fourth, and fifth *Star*

significant acclaim in Hollywood, composing for *Star Trek* was no easy task. In retrospect, critics believed that Goldsmith had to overcome two major obstacles for his score to be deemed successful: 1) craft a score that could equal John Williams's for *Star Wars*; and 2) develop a new main theme for the franchise instead of the one previously composed by Alexander Courage.[276]

Though at its premiere *Star Trek* received mixed reviews from critics and audiences, Goldsmith's soundtrack was a career highlight for many long-time fans and reviewers. In creating his score for *Star Trek*, Goldsmith had to consider the existing music from the television series, which had very close ties to the classical Hollywood style. Musicologist Jessica Getman wrote that in envisioning the musical style for the television series, Roddenberry actively avoided cliché "science fiction" sounds, and that "the creative team very purposefully went back to classical Hollywood-style adventure scoring."[277] Roddenberry wanted music that was "earthlike, romantic, sea-going" and adventurous, and chose this because he was worried that "on top of bizarre alien seascapes, you had beep-beep-beep music," which might threaten the popular success of the series.[278] When considering the motion picture over a decade later, many producers agreed with Roddenberry's desire for a more traditional musical style, including Goldsmith. Goldsmith stated in his commentary for the film that his interest in using avant-garde styles for film had peaked with *Planet of the Apes,* "where I could pull out all the stops and do whatever I wanted… the more interesting and more far out, more experimental, the happier the director

Trek film scores: *First Contact* (1996), *Insurrection* (1998), and *Nemesis* (2002). He composed the first motion picture but did not feature in the credits on sequels until *Star Trek V: The Final Frontier* (1989).

[276] "Star Trek: The Motion Picture," Jerry Goldsmith Online, accessed April 3, 2022, http://www.jerrygoldsmithonline.com/star_trek_tmp_review.htm.

[277] Getman, "Music, Race, and Gender in the Original Series of Star Trek (1966-69)." 6.

[278] Fred Steiner, "Star Trek Interviews," June 30, 1982, MSS 2193, Fred Steiner Papers, 1975-1981, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University. Interview with Gene Roddenberry.

was."[279] For *Star Trek,* Goldsmith sided with Roddenberry's musical vision and took inspiration from *Star Wars,* which had premiered two years earlier. Though Goldsmith enjoyed Williams's score for *Star Wars*, he stated that instead it was George Lucas's "vision of the music for *Star Wars"* that really influenced his own score, which included the use of leitmotifs and alluded to a wide range of romantic composers.[280]

Although he had composed several sci-fi films prior to *Star Trek* with modernist and avant-garde techniques, by the end of the 1970s, Goldsmith seems to have changed his vision of outer space. He stated, "When you stop and think about it, space is a very romantic thought. It is, to me, like the old West, we're up in the universe. It's about discovery and new life. It's really the basic premise of *Star Trek*."[281] This romantic perspective on outer space, the "final frontier," and the classic storytelling of Roddenberry's screenplay invited a more conventional approach from Goldsmith.

Given that this movie evolved from the television series, Goldsmith had to confront audience expectations for the soundtrack, especially the famous fanfare which opened every *Star Trek* episode (with the unforgettable narration, "Space: The Final Frontier"). Here in TMP, however, Goldsmith eschewed the fanfare and opted for an overture-like musical opening based on "Ilia's theme." This gorgeous, late-romantic waltz introduces the epic story about to unfold and sets the stylistic tone for the rest of the score. The twinkling piano and the lyrical strings accompany the opening sequence—a lengthy shot moving at a moderate pace through space,

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[279] Robert Wise, *Star Trek: The Motion Picture*, Sci-Fi (Paramount Pictures, 1979). Film commentary, Jerry Goldsmith, 0:00:05. Goldsmith's Hollywood repertoire is perhaps one of the most diverse in terms of compositional approaches. Goldsmith was always a little experimental, though after *Planet,* he seemed keen on using more conventional techniques for several film scores blended with some innovative style, such as *Patton* (1970) and *Hoosiers* (1986), and *Total Recall* (1990), where he blended orchestral and electronic instruments.
[280] Wise. Film commentary, Goldsmith, 0:00:48.
[281] Ibid.

with stars passing by and fading into the darkness. As opposed to the Goldsmith scores discussed in Chapter Three, which emphasize the inherent dangers of space, here his overture embraces the natural beauty and romantic spectacle of deep space exploration, exactly as he envisioned. This opening also highlighted one of Goldsmith's favorite aspects about the film: longer scenes with limited, or no sound effects. Goldsmith said, "I love the fact that there were long, long lines and long scenes with no sound effects to speak of, you could just play for a long period of time a piece of music."[282] This contrasted with many films that Goldsmith had previously worked on; for example, in *Papillon* (1973, dir. Franklin J. Schaffner), Goldsmith's music was used sparingly, only to emphasize certain psychological moments in the movie. He said later, "When you have these long scenes, it becomes really fun, you're really composing again."[283] Goldsmith's freedom in *Star Trek* also stands in stark contrast to what happened earlier in 1979 while working on *Alien* with Ridley Scott, who forced Goldsmith to rewrite significant portions of his original music—which had been written in the manner of a late romantic masterpiece—to fit Scott's avant-garde musical vision.

Goldsmith's original *Star Trek* main title music would set the standard for the franchise as it continued over the coming decades. Goldsmith's main theme distanced itself from the television theme composed by Alexander Courage, moving away from Courage's more playful and lighter theme, which blended a small studio orchestral style and jazz, to an elegant, grand symphonic theme, more aligned with the classical Hollywood style of the 1930s and 40s.[284] The

[282] Wise, *Star Trek: The Motion Picture*. Film commentary, Goldsmith, 1:05:09.
[283] Ibid. Using more of Goldsmith's music than usual might have been a strategic move by Wise and Roddenberry. According to Goldsmith, the sound on the first cut of the movie was terrible so the sound team relied heavily on Goldsmith's score to smooth out the rougher portions of the sound.
[284] Getman, "Music, Race, and Gender in the Original Series of Star Trek (1966-69)." 41. The orchestras at the time of the television series were also much smaller. Fred Steiner's orchestra only had 28 players and he cut back on strings and increased the brass and percussion.

original television series theme begins with glittering harp and woodwinds and that instantly recognizable horn solo, which gives way into a slightly jazzy, light, and upbeat theme, all the while avoiding what Roddenberry described as "the stylizations and other traps of science fiction."[285] Goldsmith's version opens with a short fanfare-like introduction for unison strings and exuberant brass, eschewing the horn solo, and leading directly into the melody, heralded by a cymbal crash. The march-like, triumphant 6/8-meter theme, led fearlessly by the trumpets, underscores the opening credits and signals to the audience that an adventurous story of good triumphing over evil is just moments away. Goldsmith's new theme for the franchise incorporated stylistic influences from the classical Hollywood style to remain well within the guidelines set by Roddenberry back in 1966. Composition duties seldom remained with a single composer for long, which resulted in a steadily growing number of *Star Trek* composers and Main Title cues. Following Goldsmith, Steiner, and Courage, composers James Horner, Leonard Rosenman, and Michael Giacchino, among others, each placed their individual stamp on the sound of the franchise. Despite this variety, the themes generally coalesce around the same conventional and romantic principles instilled by Roddenberry at the genesis of the series.

Although Goldsmith opted for a more conventional approach overall, he did not completely abandon his experimental tendencies. Roddenberry said that for TMP, "Jerry always looked for interesting sounds and non-traditional instruments through the usual symphony orchestra… all kinds of percussion, waterfalls, roller boards(?), tuned logs, he really created a huge sound for the picture."[286] Craig Huxley, a musician who also cameoed in the Original

[285] Gene Roddenberry, "Letter to Alexander Courage," March 5, 1965, Collection 62, Box 55, Folder 10, Gene Roddenberry Star Trek Television Series Collection, 1966-1969, Performing Arts Special Collections, University of California, Los Angeles, CA.
[286] Wise, *Star Trek: The Motion Picture*. Film commentary, Roddenberry, 0:58:00.

Series, invented a musical device called the "Blaster Beam"—a long aluminum beam wound with metal strings, connected to guitar amplifiers, and struck with an artillery shell. The Sound Department at Paramount recommended that Roddenberry and Goldsmith go and listen to the instrument, and it quickly became a core element of the soundtrack. One plays the Blaster Beam like a steel guitar, moving a metal bar up and down the strings on the beam to generate different pitches.[287] Goldsmith and the sound designer Frank Serafine used the Blaster Beam in several instances, including the sound for V'Ger, and because of its pitch flexibility, Goldsmith and Serafine could embed the Beam's sound seamlessly into the underscoring. Goldsmith and Serafine also had several custom synthesizers made for the recording process and these synthesizers were critical for Serafine's sound effects design, considered by many to be cutting-edge at the time. One synthesizer, the ADS (Advanced Digital Synthesizer) 11, manufactured by Con Brio in Pasadena, used *Star Trek* in their promotions and advertisements.[288] Goldsmith also used several synthesizers in the orchestra, including the Yamaha CS-80, the ARP 2600 (which also featured prominently in Goldsmith's score for *Alien*), the Oberheim OB-X, and the Serge synthesizer.[289] Serafine believed that all of this additional high tech perfectly suited *Star Trek*, stating in his 1980 article, "the basic idea of *Star Trek,* from the very beginning, was predicated upon the existence of a highly technical future civilization. The very nature of the script itself attracted high technology behind the scenes, as a reflection of what the film was conveying."[290]

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[287] Wise. Film commentary, Gene Roddenberry, 0:57:00. "You play it by hitting it with an artillery shell. And then you'd pump up the low end on the mixing console and it made a rather incredible noise! It was quite musical too because you moved this shell, it was like a steel guitar player plays with. You just moved that shell around then you'd hit it different ways and you could hit the shell with a timpani mallet."
[288] Mark Vail, *Keyboard Magazine Presents Vintage Synthesizers: Pioneering Designers, Groundbreaking Instruments, Collecting Tips, Mutants of Technology* (San Francisco: Miller Freeman Books, 2000). 85.
[289] Bill Wrobel, "STAR TREK: The Motion Picture. Music by Jerry Goldsmith. Score Analysis by Bill Wrobel" (2021), http://filmscorerundowns.net/goldsmith/startrek.pdf.
[290] Frank Serafine, "The New Motion Picture Sound," *American Cinematographer*, 1980. 846.

Goldsmith, who adamantly stated in the 1960s that he wanted to avoid cliché when it came to sci-fi soundtracks, found a great partner in Serafine while working with this state-of-the-art sound equipment. Serafine wrote in 1980, "One particular concern was to avoid sounds that had become over-familiarized because of their frequent use in previous science-fiction films."[291] Interestingly, Wise viewed the Blaster Beam as potentially another cliché sound because he believed it worked so well in *Star Trek* that it would maintain its associations with sci-fi and the extraterrestrial. "When I [directed] *The Day the Earth Stood Still* in the early Fifties, Bernard Herrmann used the theremin on the score and it sort of became associated with that film and with science fiction in general," Wise stated. "I think the same thing happened with the Blaster Beam in this film," which would later be used in the scores to sci-fi films such as *Battle Beyond the Stars* (1980), *2010* (1984), and *Star Wars: Episode II – Attack of the Clones* (2002).[292]

In the rest of this chapter, I explore how Lucas and Williams worked in tandem to revisit the classical Hollywood style for sci-fi and to explain how this style impacts our reading of technology, beings, and environments in the *Star Wars* franchise. Through an examination of Williams's score and thematic structure, I argue that Williams relies on timbre and tonality to create distinctions between the Rebels and the Empire. I further consider how Williams's score interacts with the sound effects used for each faction: where sounds from droids and blasters indicate the Rebel's treatment of technology as a tool for survival or fighting against tyranny, the noisier sounds of the Empire, like Darth Vader's gruff breathing apparatus and the beeping computers and laser beams of the Death Star, demonstrate the Empire's use of technology for

[291] Serafine. 797.
[292] Wise, *Star Trek: The Motion Picture*. Film commentary, Roddenberry, 0:58:00. James Horner was the composer for *Battle Beyond the Star* and *Star Trek II: The Wrath of Khan,* which both used the Blaster Beam.

violent conquest and significant ecological destruction. Given the creativity of Ben Burtt's sound effects design, I also analyze the placement and creation of sound effects and how they effectively blur our perception of the biological and the mechanical, especially through the different types of droids, Darth Vader, and the Death Star. Lastly, I analyze several of the leitmotifs that Williams pairs with Luke Skywalker, Yoda, and the Jawa/Tusken Raiders, showing that the characters who are most closely related to their environments (Jawa/Tusken Raiders) have themes that evolve from the music of their surroundings, while other more mobile characters, like Luke, carry their multi-purpose themes with them as they travel throughout the galaxy.

"A long time ago, in a galaxy far, far away"

Star Wars: A New Hope (hereafter ANH) kickstarted one of the longest, most popular, and most recognizable film series of all time.[293] However, many involved in the development stages of the production seriously doubted its potential, especially given the lull in popularity of the sci-fi genre, as mentioned earlier in this chapter. George Lucas (George Walton Lucas Jr., b. 1944), a film director, producer, and screenwriter, became the main driving force behind the creation of this incredible franchise at an early stage in his filmmaking career. Born in Modesto, California, Lucas was fascinated with comic books and science fiction and was an avid fan of the television series *Flash Gordon,* a space opera comic series first published in 1934. Following a tragic accident as a young racecar driver, Lucas shifted his interests and found a new home in cinema, where he and a close friend found themselves immersed in avant-garde and classic European films, many by Jean-Luc Goddard.[294] He graduated from the University of Southern

[293] According to IMDb, *Star Wars* (1977) is the all-time second highest-grossing film in North America, behind *Gone with the Wind*. Worldwide, it ranks fourth. *Star Wars* is also the highest grossing sci-fi film since 1950, and did so on a budget that was not even the largest of the decade ($11 million budget; box office $775.8 million).
[294] Steve Silberman, "Life After Darth," *Wired*, accessed March 24, 2022, https://www.wired.com/2005/05/lucas-2/.

California in 1967 and immediately linked up with Francis Ford Coppola to begin a career as a filmmaker. Prior to *Star Wars,* Lucas had worked on just two films as an executive producer or screenwriter: *THX 1138* (1971) and *American Graffiti* (1973).

Lucas's approach to the *Star Wars* screenplay offers an insight into not just his conception of the narrative, but also what kind of music he envisioned the film would contain. Lucas first came up with the idea while he was working on *American Graffiti* with producer Gary Kurtz.[295] At first, Lucas wanted to craft a sci-fi screenplay in the style of *Flash Gordon*, a throwback to his childhood. Instead, Lucas crafted his own drama in the style of the once-popular space opera genre; he called it *Journal of the Whills*.[296] Though Lucas abandoned the *Journal* in favor of a different screenplay, the concept of the old-fashioned "space opera" remained and set *Star Wars* apart from other contemporary sci-fi films with a nostalgic element that may have aided in its broad popularity. The earliest examples of the still-to-be-coined space opera subgenre came from as early as the 1920s in sci-fi magazines, but an agreed-upon definition for "space opera" eludes authors on the topic still today. David Pringle attributes the earliest use of the term to Bob (Wilson) Tucker in a fanzine from 1941, where he described space opera, in a derogatory way, as "hacky, grinding, stinking, outworn, spaceship yarn."[297] Pringle's own broad definition of space opera identifies the "exuberant, adventuresome, more-than-a-little naïve space-ship stories"

[295] Kevin Burns and Edith Becker, *Empire of Dreams: The Story of the Star Wars Trilogy*, Documentary (20th Century Fox Television, 2004).
[296] Though mostly speculative, some *Star Wars* enthusiasts proclaim that Lucas looked to the work of American author Edgar Rice Burroughs, specifically his *Barsoom* series, for inspiration for his own space opera. Allegedly, this *Journal of the Whills* was how Lucas would connect the fictional world of *Star Wars* with our own real world, functioning as a historical records book and diary, noting all the events happening throughout this galaxy. Lucas's *Journal* inspired many of the adventures and plot lines from the movie series, but he never published the document in any official way.
[297] David Pringle, "What Is This Thing Called Space Opera?," in *Space and Beyond: The Frontier Theme in Science Fiction*, ed. Gary Westfahl (Westport, CT: Greenwood Press, 2000), 35–48. 35.

made popular by authors like John W. Campbell, Edmond Hamilton, and E. E. "Doc" Smith.[298] Space opera is considered a subgenre of sci-fi and though space operas share settings and character types with other sci-fi subgenres, what makes space operas distinct is their emphasis on adventure and space travel, featuring a heroic main character and a dramatic, epic narrative.[299]

One theme that captivated Lucas and remained the focus in his *Journal* was the threshold between our Earth and the worlds beyond, connecting it back to the idea of the frontier. He said, "Where is the frontier today? Well, I can stand in my front yard and look up into the sky and say 'I wonder what's out there.'"[300] Lucas's choice of space opera as the defining sub-genre for *Star Wars* adds an ecological angle to his narrative as it connects to similar terrestrial tales of conquest. This idea of the frontier was well-suited for the space opera, which shares traits with the broader group of "operas," including horse operas (a catch-all term for Westerns that followed a common dramatic formula), and the original soap operas (domestic, melodramatic radio shows that were given this title because of soap sponsorships).[301] The "adventure" of the space opera is similar to that of the horse opera, taking on an imperialist appearance, especially when these stories detail tense interactions between humans and extraterrestrials, who seem to be filling in for Native Americans.

The key difference between horse and space operas was simply setting, and some authors and enthusiasts noticed how proximate these two genres were, signaling that space opera was

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[298] Pringle. 35.
[299] Two complementary definitions come from Kathryn Cramer and David G. Hartwell, *The Space Opera Renaissance* (New York: Tor Books, 2006), and A. K. DuBoff, "A.K. Duboff (Author of Architects of Destiny)," *Goodreads,* https://www.goodreads.com/author/show/18036488.A_K_DuBoff.
[300] Stephen Larsen and Robin Larsen, *A Fire in the Mind: The Life of Joseph Campbell* (New York: Doubleday, 1991). 156.
[301] Pringle, "Space and Beyond." 36–38. There is another similar, but less popular genre, "planetary romance," which some literary historians suggest shares the same adventurous vein as space opera, but focuses more on alien worlds, rather than the opera's focus on space travel.

derivative and cliché. Half-jokingly, the back cover of *Galaxy Magazine* from 1950 showed two short stories, one with a noticeable Western flair, the other substituting sci-fi equivalents. At the bottom, the text reads, "Sound alike? They should—one is merely a western transplanted to some alien and impossible planet." *Galaxy* followed with a rather harsh comment about their stance on *true* sci-fi narratives, "If this is your idea of science fiction, you're welcome to it! YOU'LL NEVER FIND IT IN GALAXY!"[302]

Lucas revisited the established and popular space opera design, which reconnected sci-fi with a popular audience and shaped the course of sci-fi film production through the 1990s. Lucas's screenplay, however, differs from the traditional space opera story. Despite benefitting from the physical distance from the Earth, which sci-fi used as an avenue for critical narratives, space operas, much like horse operas, romanticized adventure and were typically uncritical of its narratives. In *Star Wars*, Lucas reverses the space opera narrative, making room for critical perspectives on conquest, as the conqueror is now the villain, and the romanticized heroes are those who defend against the tyrannical empire. The success of both *Star Wars* and *Star Trek* also came from their robust production budgets, two of the highest that Hollywood had ever seen, affording the production teams excellent sound design and special effects artists.[303] Both films also found tremendous success in their choice of composer. John Williams, who prior to the 1970s was a relatively unknown studio musician in Hollywood, skyrocketed in popularity during the late 1970s and, for *Star Wars*, composed one of the most monumental soundtracks in film music history.

[302] *Galaxy Magazine*, back cover, October 1950.
[303] *Star Wars: A New Hope* had a production budget of $11M; *Star Trek: The Motion Picture*, $35M.

A Refreshed Sci-Fi Soundworld

Lucas was thinking about the music for *Star Wars* before he even completed the screenplay. Musicologist Emilio Audissino wrote that Lucas wanted the score that accompanied his film to differ from previous sci-fi features, avoiding musical styles that had become standard practice among sci-fi film scores, such as electronic music and modernism. Lucas's aversion to sci-fi music clichés differed from Goldsmith's, who found value in them as we saw in *Planet of the Apes* and *Alien*.[304] While writing the screenplay, Lucas listened to music by a host of late-romantic composers, including Richard Wagner, Richard Strauss, Gustav Holst, Antonín Dvořák, Maurice Ravel, and several others. Lucas's immersion in music by these composers led him to want a score that sounded like theirs, initially favoring a score comprised of preexisting music from those listed composers. He saw how effective such an approach could be, best exemplified by Stanley Kubrick and his (permanent) temporary track for *2001: A Space Odyssey,* which included music by both Richard and Johann Strauss and György Ligeti. Audissino suggests that another part of Lucas's thought process was his general distrust in film composers at the time, a feeling he shared with Kubrick, who said, "However good our best composers may be, they are not a Beethoven, a Mozart, or a Brahms. Why use music which is less good when there is such a multitude of great orchestral music from the past and from our own time?"[305] Fortunately for John Williams, Lucas decided otherwise.

While writing the screenplay, Lucas was unaware of John Williams, whom he learned about only after a conversation with Steven Spielberg. Lucas said to Spielberg that he was

[304] Audissino, *John Williams's Film Music: Jaws, Star Wars, Raiders of the Lost Ark, and the Return of the Classical Hollywood Music Style*. 71.
[305] Audissino. 71.

looking for "a classical score," with "the Korngold kind of feel," and that "[*Star Wars*] is an old-fashioned kind of movie." He wanted an extensive soundtrack that would sound like those from older Golden Age movies.[306] Lucas also wanted a unified score with themes that could link multiple films together. Spielberg, who would later enjoy a lengthy partnership with Williams, recommended Williams to Lucas based on his work for *The Sugarland Express* (1974) and *Jaws* (1975). These scores demonstrated Williams's main compositional characteristics: a neoromantic style with a thematic construction—exactly what Lucas was looking for. Lucas, resisting the urge to follow Kubrick's temp track design, selected Williams based on this recommendation. By hiring Williams, Lucas hoped that he could approximate the sound of the classical Hollywood style, effectively matching the space opera narrative that he crafted.

Through his broad musical exposure in his youth and his development as a composer in Hollywood, Williams developed a level of compositional versatility. He was comfortable composing in jazz and symphonic idioms, making him an attractive composer for bigger productions. His father, Johnny Williams, was a prominent jazz drummer and percussionist in New York, and when the family moved to Los Angeles in the 1940s, Williams started composition lessons with Mario Castelnuovo-Tedesco (also Jerry Goldsmith's instructor) at Los Angeles City College while he was an undergraduate student at UCLA and played piano in the jazz ensemble. Williams eventually returned to New York after a stint in the Air Force and attended the Juilliard School, studying piano with Rosina Lhévinne.[307] While in New York, he

[306] It is intriguing that Lucas wanted the score to sound like Korngold, because many scholars and critics believe that what Williams wrote may have been directly taken from Korngold. Caryl Flinn wrote, "[*Star Wars's*] principal theme bears an uncanny resemblance to Korngold's title theme of *King's Row* (1942), following the same basic melodic movement (such as the opening, heavily stressed fifth interval) and instrumentation (a prominent brass section)." Flinn, *Strains of Utopia: Gender, Nostalgia, and Hollywood Film Music*. 153.

[307] Williams's role in the Air Force included playing the piano and brass instruments. He also conducted and arranged music. Rosina and her husband, Josef, were both highly skilled pianists and joined the faculty at the

also freelanced as a jazz pianist throughout the city, working clubs and playing for studio recording sessions. Williams moved back to Los Angeles in the late 1950s and played as a studio pianist for various Hollywood film studios, recording for a couple of major films like *Some Like It Hot* (1959), *West Side Story* (1961; published soundtrack), and *To Kill a Mockingbird* (1962).[308] Around the same time, Williams started to develop his skills as a film composer. He connected with some of Hollywood's most famous composers of the period, including Bernard Herrmann, Alfred Newman, and Franz Waxman. Like many burgeoning composers in Los Angeles, Williams initially worked as an orchestrator for television and smaller budget films.[309]

After years of performing and composing for smaller productions, Williams had his big break in the 1970s. Though he received two Academy Award nominations in the late 1960s, his first win came in 1971 for his score for *Fiddler on the Roof* (dir. Norman Jewison), and he gathered eight nominations before winning again in 1976 for *Jaws* (dir. Steven Spielberg). Steven Spielberg, watching Williams's meteoric rise in popularity among Hollywood studios, partnered with him and created one of his longest-standing relationships in Hollywood, second only to the successful and prolific duo of Herrmann and Hitchcock. Spielberg, also on the rise in Hollywood, asked Williams to compose a score for his first feature film, *The Sugarland Express* (1974). Since then, the pair has worked together for over four decades, producing some of the most popular movies in the last half-century including *Jaws* (1975), the *Indiana Jones* series, *E.T.* (1982), and *Jurassic Park* (1993).

Juilliard School between the two World Wars (then called the Institute of Musical Art). Rosina took over Josef's teaching responsibilities following his death in 1944.

[308] Williams also recorded as a pianist for several scores by Goldsmith.

[309] Throughout his career, Williams composed for more than 200 television episodes for several series.

In addition to his flexibility as a composer, what set Williams apart from other sci-fi composers at the time was his neoromantic style. Through these major feature film scores, Williams ushered in a revival of the classical Hollywood style, replacing the unconventional scoring practices and various electronic instruments and synthesizers with the traditional symphony orchestra. Williams also adopted thematic scoring as a major feature of his style. *Star Wars,* set a long time ago and in a galaxy far, far away, might have encouraged a more avant-garde score, but like many sci-fi films, *Star Wars* is much more than sci-fi. It shares traits with western, fantasy, and adventure genres. This blend of genres was not unique to *Star Wars,* but its more positive, heroic portrayal encouraged Williams's traditional scoring style, whereas the dystopian aspects of *Planet of the Apes* and *Alien* supported Goldsmith's avant-garde scores. Considering his options (and following Lucas's personal desires), Williams drew inspiration from Korngold, stating that he thought Korngold created an almost operatic sound, bringing "the Vienna Opera House to the American West."[310] Williams and Lucas first met to discuss *Star Wars* in 1975 and they reviewed an early cut of the film together. It was at this point that Williams supposedly convinced Lucas to choose him over the preexisting material of the temp track. Without knowing that Lucas would eventually turn *Star Wars* into a trilogy and beyond, he saw the potential for strong thematic unity and a chance for him to compose an old-fashioned, "swashbuckling symphonic score," which excited him.[311] Williams also saw the opportunity to match the development of musical themes with the characters and concepts as

[310] Audissino, *John Williams's Film Music: Jaws, Star Wars, Raiders of the Lost Ark, and the Return of the Classical Hollywood Music Style*. 72.
[311] Audissino. 71.

they evolved in the film, which would be very difficult, if not impossible to achieve using music by Holst, Tchaikovsky, or Wagner.

Lucas's decision to hire Williams was exceptionally bold for this period of sci-fi. "In the years from 1975 to 1976 the choice of a full symphonic score was definitely against the tide and a very risky one," Audissino observed. "If the sci-fi genre was considered unfashionable, even more so was the classical music style."[312] There are several reasons for this: as studio orchestras gradually disappeared, hiring enough musicians to staff a full-sized symphony was growing more expensive, and synthesizers and music-making technology were advancing rapidly.[313] Yet Williams was confident that his renewed vision of the classical Hollywood style would suit sci-fi. Alongside *Star Wars* in 1977, Williams crafted another celebrated symphonic score for *Close Encounters of the Third Kind*, where tonal cadences and western scales played a central role in the connection between humans and aliens.

Spielberg intended for *Close Encounters* to be the partner film to *Star Wars* and it was this partnership that, according to several critics and historians, made 1977 such a significant year for sci-fi in Hollywood history.[314] Much like its more successful counterpart, *Close Encounters* simultaneously looks toward the future through its advanced technology and face-to-face interactions between humans and extraterrestrials and embraces the past through Williams's score that draws upon compositional styles from the late 19th century. *Close Encounters,* as opposed to *Star Wars,* looks much more like the alien invasion films from the 1950s. It aligns

[312] Audissino. 73.
[313] Daniel Godsil, "Building Worlds: Timbre in Music for Cinema" (Dissertation, Davis, CA, University of California, Davis, 2021). 27.
[314] Neil Lerner, "Nostalgia, Masculinist Discourse and Authoritarianism in John Williams' Scores for Star Wars and Close Encounters of the Third Kind," in *Off the Planet: Music, Sound and Science Fiction Cinema* (Bloomington, IN: Indiana University Press, 2004), 96–106. 96. Lerner cites principally, Larry Gross and Thomas Schatz.

even closer with *The Day the Earth Stood Still*, in which the aliens were monitoring developments on Earth and wanted to understand our behaviors. Musically, we find another key difference, in that for *Star Wars,* Williams's leitmotifs primarily reinforce the narrative, and in *Close Encounters,* music is also the medium by which humans and aliens communicate.

Musicologist Neil Lerner points out that Williams's use of aleatoric passages and tone clusters (in the style of Ligeti and Penderecki) creates a negative association with aliens.[315] At other times, Williams used more tonal music (akin to Richard Strauss) to designate "suburban" society, and the film ultimately rejects the atonal music initially associated with the aliens. Lerner connects this with some of the film's more negative reception, which called it authoritarian and fascist, due to its "elevation of irrational dogma over scientific reason," among other things.[316] At the climax of the film, the tonal and orchestral back-and-forth between the scientists and the aliens demonstrates a capacity for connection between the two.

Williams was aware of a gap between what we hear and what we see on screen, but he saw it as a strength of his score. While on one hand, the image track highlighted the unfamiliar, showing distant planets, futuristic technology, and a whole cast of strange-looking extraterrestrials, Williams's music was "emotionally" familiar, creating a bridge that enabled audiences to engage with material that is otherwise distant, unfamiliar, or strange.[317] Though audiences adored Williams's musical decisions, some critics were confused as to why he did not choose avant garde music instead, especially for a sci-fi film. They called his style "corny

[315] Lerner. 102.
[316] Lerner. 101–2.
[317] Craig L. Byrd, "The Star Wars Interview: John Williams," *Film Score Monthly*, February 1997. 18.

romanticism."[318] In defending against this critique, Williams suggests that films like *Star Wars* offer an imaginative escape for audiences and that "in that escapist thing is the whole romantic idea of getting away, of being transported to another kind of atmosphere."[319] Whereas Bebe Barron sought to transport audiences to a distant planet by surrounding them with the electronic sounds she believed best characterized the environment, Williams focused on how sci-fi can take audiences away from reality.

Audiences received Williams's score very well at the movie's premiere in 1977, but few could have predicted the music's lengthy afterlife. Following 20th Century Records LP release in June 1977, Williams's "Main Title" reached the Top 10 of Billboard's "Hot 100."[320] A disco-themed cover of the Cantina Band and Theme music by the band Meco appeared in the 13th spot. In terms of sales, the album is still the best-selling symphonic album of all time and is RIAA certified Gold and Platinum.[321] The Library of Congress accepted the soundtrack into the National Recording Registry in 2004 because of its "cultural, historical, and aesthetic" significance. Williams's eight-hundred-page score and 88 minutes of total recorded music also marks one of the biggest soundtracks in history, covering nearly three-quarters of the 120-minute running time. Other composers watched as Williams's score skyrocketed in popularity and knew they were at a major turning point in Hollywood sound—a "Film Music Renaissance." Lionel Newman said that Williams changed everything in Hollywood music; while everyone

[318] Audissino, *John Williams's Film Music: Jaws, Star Wars, Raiders of the Lost Ark, and the Return of the Classical Hollywood Music Style*. 75.
[319] Kenneth Terry, "John Williams Encounters the Pops," *Downbeat*, March 1981. 20.
[320] "The Hot 100: Week of September 17, 1977," Billboard, accessed March 10, 2022, https://www.billboard.com/charts/hot-100/1977-09-12/.
[321] Seth Abramovitch, "Hollywood Flashback: John Williams' 'Star Wars' Score Won a Golden Globe and an Oscar," The Hollywood Reporter, January 29, 2021, https://www.hollywoodreporter.com/movies/movie-news/hollywood-flashback-john-williams-star-wars-score-won-a-golden-globe-and-an-oscar-4120730/.

thought that the days of a 50–60-person orchestra were in the past, he wrote, now "you can't think of a big movie without thinking of using a full symphony orchestra."[322]

Williams's Leitmotifs

Williams's late romantic style inherently encouraged a leitmotivic structure for the score which allowed him to develop themes throughout the *Star Wars* series and create greater musical unity across the films—exactly what Lucas wanted. Unlike many other composers who attempted to use leitmotifs effectively in their scores, many scholars suggest that Williams used leitmotifs in *Star Wars* in ways that scholars assess were particularly close to the Wagnerian leitmotif in function and meaning.[323] By crafting his score in a similar vein to Wagner—not simply creating one-time themes but rather developing them and using them dramatically—Williams enabled a "myth-making" musical narrative like the one that was so effective in Wagner's music dramas.[324]

Theodor Adorno and Hanns Eisler were highly critical of the use of leitmotifs during Hollywood's Golden Age, particularly because they felt it was impossible for film motives to function as Wagner intended them to, as composers often used them superficially for symbolism. Adorno and Eisler name the leitmotif Hollywood's chief "bad habit," arguing that film composers had degraded the value of the leitmotif to simple symbolism through repetition, rather than gaining the grander structural meaning characteristic of Wagnerian drama. Quoting Carl Dahlhaus, Buhler writes, "a leitmotif seems to require naming yet always extends beyond

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[322] Lionel Newman quoted in Richard Dyer, "John Williams Is New Pops Maestro: A Musician's Musician," *Boston Globe*, November 11, 1980.

[323] Irena Paulus, "Williams versus Wagner or an Attempt at Linking Musical Epics," *International Review of the Aesthetics and Sociology of Music* 31, no. 2 (2000): 153–84, https://doi.org/10.2307/3108403.
[324] James Buhler, "Star Wars, Music, and Myth," in *Music and Cinema*, ed. James Buhler, Caryl Flinn, and David Neumeyer, Music/Culture (Hanover, NH: University Press of New England, 2000), 33–57.

any meaning captured by that name."[325] Adorno and Eisler give the example of the "Valhalla" motif from the *Ring,* stating that "it is not merely to indicate the dwelling place of Wotan," and that Wagner also used the motif "to connote the sphere of sublimity, the cosmic will, and the primal principle."[326] Simply put, Adorno and Eisler believed that the leitmotif could never truly be as effective a device in film as it was in its Wagnerian context. Despite these claims from 1947, they might have approved of what Williams did with the Wagnerian technique in the *Star Wars* series. As I show in my analysis of Williams's motifs and their relationships to characters, themes, and landscape, Williams was able to come close to the true Wagnerian leitmotivic style—as defined by Adorno and Eisler—in his score.

To the great benefit of all who study these scores, music theorist Frank Lehman has broken down the soundtrack for the entire *Star Wars* franchise and documented it in his *Complete Catalogue of the Themes of Star Wars* (last updated September 2021).[327] In the Original Trilogy, Lehman identifies 24 recurring motifs, including some of the most recognizable like the "Main Theme" and the "Imperial March," and notes in which movies the themes reappear. What I wish to explore in my analysis is how, through these motifs, we can understand a character's relationship with their landscape. In some cases, the themes are more closely embedded with the music of the surrounding desert environment, as found with the indigenous Jawa and Tusken Raiders. These leitmotifs, usually reserved for less important characters, are usually less melodic and more rhythmically and timbrally focused. In other cases, such as Luke, his theme, the "Main Title" leitmotif, is broader and shares the myth-making quality of the Wagnerian leitmotif. In

[325] Buhler. 41.
[326] Adorno and Eisler, *Composing for the Films*. 3.
[327] Frank Lehman, "Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe," September 16, 2021.

comparison to the Jawa and Tusken Raiders, many of the main characters, like Darth Vader, are highly mobile, thus their leitmotifs are less connected with their immediate surroundings and travel with the character instead.

Ecology and the Music of the *Star Wars* Original Trilogy

An understudied area of the *Star Wars* franchise is how Williams's score intersects with the ecological features within the universe. Scholars who have previously approached the *Star Wars* series and Williams's soundtracks often focus on his thematic structure or his compositional choices and how these relate to the narrative (Buhler 2000; Audissino 2014; Lehman 2021). Politics has also been a major scholarly focus. Peter Lev's 1998 article questions the ideological propositions of *Star Wars*, *Blade Runner,* and *Alien*.[328] He proposes that whereas *Alien* and *Blade Runner* "create futures linked to liberal and socially critical ideas," *Star Wars* imagines a much more conservative future with traditional morality and family values. Historian Michael B. Charles argues that Lucas's *Star Wars* portrays a classic political discourse from the Roman Republic, pitting "political freedom versus dictatorial oppression," yet the pursuit for liberty is merely illusory, as it was too for the lower echelons of Roman society.[329] Douglas Brode and Leah Deyneka's 2012 book *Sex, Politics, and Religion in Star Wars* covers a wide variety of discourses on racism, Cold War politics, homosexuality, transcendentalism, and Judaism.[330]

Though in many of these cases the scholars superficially discuss the impact of futuristic technology on the ideological messages of *Star Wars,* few go so far as to consider its ecological

[328] Peter Lev, "Whose Future? 'Star Wars, Alien', and 'Blade Runner,'" *Literature/Film Quarterly* 26, no. 1 (1998): 30–37.
[329] Michael B. Charles, "Remembering and Restoring the Republic: 'Star Wars' and Rome," *The Classical World* 108, no. 2 (2015): 281–98.
[330] Douglas Brode and Leah Deyneka, *Sex, Politics, and Religion in Star Wars: An Anthology* (Lanham, MD: Scarecrow Press, 2012).

implications. Because of the frequent space travel in *Star Wars,* a key narrative element of space operas, the storyline exposes audiences to a wide range of beings and environments. These include the diverse crowd at the Mos Eisley spaceport cantina, the deserts of Tatooine, the metallic Death Star, the icy Hoth, and the swampy planet of Dagobah.

Williams, who worked closely with Lucas and read the scripts prior to composing for ANH, has not shared through primary sources that he intentionally composed themes to mirror specific environments, as he focused instead on broader concepts and specific characters for his themes. However, I argue there are several musical moments where his underscoring encourages a landscape-focused musical analysis, as his score aligns with key features of the environment on screen. In my examination of the intersection of Williams's score with ecology, I show how his music distinguishes the protagonists from the antagonists regarding their implementation of advanced technologies to promote habitation and survival or as a tool for imperial destruction. I further address how Williams links specific characters and landscapes. Because his score focuses on characters, they are the starting point for my analysis, but I show that his music goes beyond identifying characters and their development to illuminate underlying ecological messages and themes present throughout the *Star Wars* series.

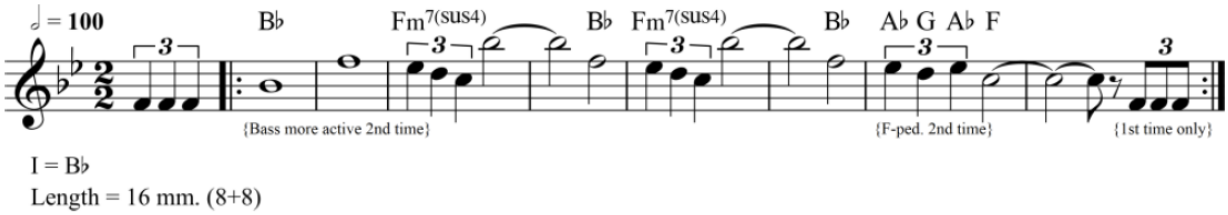
Nature versus Technology (Rebels versus Empire)

Visually, the conflict between the Rebels and the Empire is clear: we are shown constant battling and struggles over technology, planets, and people. This is evident from the initial scene of ANH which establishes the conflict between the Empire and the Rebels as Princess Leia's starship is intercepted by an Imperial Star Destroyer. Musically, however, this conflict is less

obvious, though there are key musical characteristics that distinguish the Rebels from the Empire.

The introduction to ANH offers our first musical pairing between the "Main Title" cue and the Rebellion as the protagonists of the drama. The unforgettable title card sequence with the scrolling prologue prepares the audience for the hero's tale that is soon to begin. Meanwhile, Williams's thrilling "Main Title" cue immediately grabs the attention of the audience with a blaring B♭ major chord played by the full orchestra and follows up with a brassy, fanfare-like introductory phrase leading directly into the familiar main melody. Here, the music is upbeat and optimistic—an obvious choice to kick off an adventurous and heroic story. One distinct feature of this cue is the frequency of rising fourths and fifths. The first portion of the melody moves from F to B♭, and then leaps again up to F, followed by a short descending triplet that decorates a leap from E♭ up to B♭. The main landing points for the melody are, in ascending order, F, B♭, F, and B♭. The triplets that link these structural notes create a more musical melody, but the fifth interval between B♭ and F is the key feature of this melody, reaffirming the heroic and "natural"—in the sense of the overtone series—qualities of the theme. We also hear the "Main Title" melody when we are first introduced to Luke Skywalker, further confirming this theme's association with the Rebellion. As the prologue ends and the action begins, the underlying music for this first conflict scene is a reversal from Williams's "Main Title." Any sense of melody disappears from the underscoring and most of the major harmonies are instead replaced with minor and diminished harmonies, reflecting the conflict on screen brought about by the aggressiveness of the Empire.

Example 10: Main Title theme. Source: Frank Lehman, Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe (2021)



In ANH, the music of the dark side of the Force (encompassing the Empire) is comprised almost entirely of minor chords. What is interesting about Williams's musical choices for the Empire, as noted by Buhler, is that he avoids the approach of using atonal music or modernist styles to represent the antagonists. Buhler observes, "Williams does not associate atonal dissonance with the Empire, though this would have been the obvious choice given the trilogy's antimodern bent."[331] Instead of atonality or other modernist styles, Williams simply creates a harmonic juxtaposition between the antagonists (minor harmonies) and the protagonists (major harmonies). He does not use any melody to announce the arrival of the Empire in the first scene, but rather uses a series of ascending minor harmonies, which Lehman classifies as the "Death Star" motif. The theme begins on an A minor chord and ascends through chord tones, arriving at C♯ minor. Lehman does identify a few other motifs that he attributes to the Empire, which he calls "Imperials (motif)" and "Imperials (ostinato)," but once again, these themes are amelodic and emphasize minor harmonies.[332] This first scene is extremely noisy and presents outer space not as vast and empty, but rather as an arena for conflict. Film music theorist and composer Daniel Godsil describes the music of this opening sequence, suggesting

[331] Buhler, "Star Wars, Music, and Myth." 46.
[332] Lehman attributes the term "theme" to a broad range of musical motifs, both melodic and more rhythmic. Throughout I adopt Lehman's broader definition of "theme."

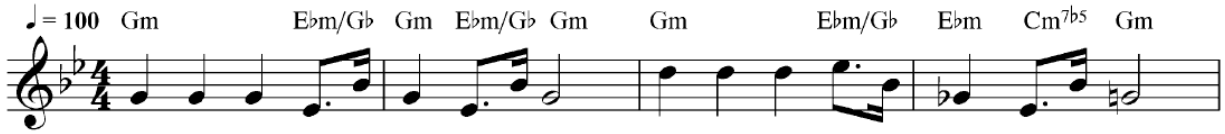
that Williams's portrayal of the outer space soundworld is "loud… filled with explosions, blaster fire, and bold, brassy, percussive orchestral music."[333]

Williams does not give the Empire a melodic theme until the "Imperial March," from *The Empire Strikes Back* (1980, hereafter ESB). This militaristic march is most notable for the low strings and the snare drum that open the cue, along with its snappy melody in G minor. Some suggest that for the "Imperial March," Williams drew from both Frederic Chopin's *Piano Sonata No. 2* and Gustav Holst's "Mars" from *The Planets* to compose the melody and part of the rhythm and harmony, respectively.[334] In comparison to the "Main Title" music, the "Imperial March" is darker and much more aggressive, driven by the ostinato percussion and the sharp rhythmic gestures, making the connection to "Mars" and its astrological evocations of war. Furthermore, whereas Williams built the "Main Title" melody around an ascending fifth interval between B♭ and F, the "Imperial March" melody moves primarily through descending third intervals. Beginning on the tonic in G minor, the melody descends to the submediant E♭, then jumps briefly to B♭ before bouncing back to G. The descending third adds a menacing quality to the already aggressive nature of the "Imperial March." Like how Williams treated the Empire in ANH, the "Imperial March" cue is comprised almost entirely of minor harmonies—cycling through Gm, E♭m/G♭, and $Cm^{7\flat5}$—complemented by the melody structured by descending thirds, aligning this theme harmonically with the antagonists.[335] Unlike in ANH where Williams composed several generic themes for the Empire that rarely appear in later *Star Wars* films,

[333] Godsil, "Building Worlds: Timbre in Music for Cinema." 43.
[334] Michael Shobe and Kim Nowacki, "Listen to the Classical Influences in the 'Star Wars' Score | WQXR Features," WQXR, December 16, 2015, https://www.wqxr.org/story/throwback-thursday-classical-music-influences-inside-john-williams-star-wars-score.
[335] Lehman, "Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe."

perhaps what Adorno and Eisler would consider an objectionable use of thematic composition, Williams uses the "Imperial March" theme ubiquitously throughout the rest of the *Star Wars* scores, both as an identifier of the Empire, but also more specifically as the theme for Darth Vader, exactly the same way Luke is musically paired with the Rebellion.[336] The militaristic nature of this theme reflects characteristics of the Empire, who in both ANH and ESB instigate large-scale conflicts to conquer the Rebellion and maintain imperial control over the galaxy.

Example 11: Imperial March theme. Source: Frank Lehman, Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe (2021)



I = Gm (*hexatonic/chromatic*)
Length = 12 mm. [4+4+4]

While making a dramatic distinction between the Rebellion and the Empire, the music also illustrates their opposing attitudes toward technology and the environment. Technology has always been at the center of sci-fi and is one of its more critical themes, especially in the genre's constant moral and ethical debate over technological advancement and its benefits and drawbacks for humanity. ANH shows us that the Empire uses technology for imperialist purposes, represented principally by the Death Star and its powerful laser, capable of destroying entire planets in mere seconds. Later in the second trilogy, we see technology used to create massive droid armies to combat the Rebellion. The Rebels, on the other hand, use technology to sustain human life. Uncle Owen Lars operate a moisture farm on Tatooine, using moisture

[336] The "Imperial March" theme does not appear in ANH, so Vader's appearance in the opening scene is musically supported by frantic, unmelodic music made up of mostly minor harmonies.

evaporators and hydroponic gardening and as a means for generating sustenance and income.[337] The Rebellion has its own weapons and fighter spaceships, though they are used primarily to defend the defenseless on other planets and to fight back against the Empire. In addition to the soundtrack illuminating these key differences between the Empire and the Rebellion, the use of sound effects throughout ANH illuminates each side's attitude toward technology.

In contrast to *Star Trek's* soundtrack, which seemed to focus more on its innovative sound design, the main sonic focus of *Star Wars* is Williams's score. The technological innovations that Serafine and Goldsmith brought to the sound design of *Star Trek* are largely absent in *Star Wars*. However, what *Star Wars* lacks in advanced sound design and state-of-the-art synthesizers, it makes up for through Ben Burtt's creativity in transforming complex natural sounds into the sound effects in the movie, such as creating the sound of a blaster by recording himself tapping a wrench on a steel cable for a telephone pole. Burtt stated his preference for these sounds over synthesized sounds because "the sounds of the real world are complicated and kind of dirty," which synthesizers were not capable of producing.[338] Furthermore, the placement and style of these sound effects do support the portrayal of characters and groups within the drama. The sound effects accompany the music of the Empire and the dark side more often than the Rebels and light side. Blasters, doors, spaceship engines, computers, Darth Vader's breath, and the whirring din of the Death Star all contribute to a rather noisy presentation of the Empire.

Though the audience does not uncover Vader's human identity until ESB, upon his first appearance in ANH, one could assume that Vader is at least somewhat human through his appearance and mannerisms. Yet his computerized voice and the unmistakable drone of his

[337] Wookieepedia, moisture evaporators.
[338] Dale Pollock, *Skywalking: The Life and Films of George Lucas* (New York: Da Capo Press, 1999). 178.

breathing apparatus give Vader a distinctly mechanical character. Buhler wrote, "What is frightening about Vader is the way everything that is organic and human about him is masked by technology without completely destroying the sense that something is alive in there," leading Buhler to suggest that the various noises made by Vader and various droids were "pseudo-organic…distinct from weapons fire and engine noises."[339] The stormtroopers also display similar mechanical, yet human traits. Their carbon-copy appearance and the electronic filtering of their voices make them appear and sound mechanical though we assume there is a human within the suit of armor based on its human-like appearance and emotional/psychological capacity (despite never seeing a stormtrooper without a helmet).[340]

The pseudo-organicism of the Empire extends also to the Death Star, the home base of the Empire and its main symbol in ANH. Upon first approaching it in the Millennium Falcon, Han Solo and Obi Wan believe that they are coming up to a moon, still far off in the distance. However, as they get closer, their computers alert them that it is in fact not a moon or planet, but rather a massive space station, which now controls the Millennium Falcon via tractor beam and pulls the spaceship into its hangar. The inside of the Death Star sounds like a stereotypical computer, with soft whirring, buzzing, and occasional beeps, detailing the complex innerworkings of this gigantic weapon. While we may initially perceive the Death Star to have pseudo-organic qualities, its strictly inorganic sounds confirm its mechanical nature, but not all the sound effects for technology in the film were made with only inorganic sounds. Sound designer Ben Burtt, praised by many for his creativity in *Star Wars*, processed organic sounds to

[339] Buhler, "Star Wars, Music, and Myth." 40 – 41.
[340] In ANH, after the Falcon lands in the Death Star, Han and Luke subdue the stormtroopers as they board and then disguise themselves in their suits, thus implying there is a human underneath the black and white armor.

shroud the source, transforming what was originally organic, into an inorganic sound. To create the distinct "scream" of the TIE fighter, which we hear prominently in the dog fight scene, Burtt used tape manipulation techniques on a recording of a trumpeting elephant. Frank Serafine described this method as "acoustical re-recording," and attributed this new development in sound creation to Burtt.[341] Burtt's tape manipulation mechanized the elephant's trumpet and militarized it by pairing it with the TIE fighter.

On the opposite side, the soundtrack for the Rebels has noticeably fewer sound effects. Save for the occasional soft hum of the light saber and the roar of X-wing fighters, the Rebels and the protagonists usually pair more with Williams's score rather than the surrounding noises. The opening scene of ANH is a good example of how Lucas and Williams navigated the use of sound effects. The effects fade almost entirely as we see Princess Leia for the first time and instead, we hear "Leia's theme," making her the sonic focus and not the ensuing battle just on the other side of the door. Buhler also points out that in this moment Williams introduced a period of "tonal and thematic stability" that has been largely absent from the soundtrack since the opening credits.[342]

Droids are perhaps the "noisiest" characters of *Star Wars,* but the characteristics of their sounds cause the audience to perceive them as more or less human. The two most popular droids in the original trilogy, and the ones that receive the most screen time in ANH, are R2-D2 and C-3PO. R2-D2's bleeps, bloops, and often dramatic and almost vocal sounds make the droid stand out as a robot that shares some emotional traits with humans. R2's sounds were created by sound designer Ben Burtt, who recorded his own whistling and processed the sound through a

[341] Serafine, "The New Motion Picture Sound." 798.
[342] Buhler, "Star Wars, Music, and Myth." 40.

series of synthesizers, making R2's sound more life-like.[343] Though mechanical, we perceive the droids of the Rebellion to be more like humans because their sonic expressions seems much more natural and because C-3PO translates them for us, in effect R2 communicates often with C-3PO and Luke, and these expressive tones add a personal, and often comical, element to R2's character. C-3PO is even more strongly personified. He looks like a human, walking upright on two legs, with a human-like face and two arms, and he communicates clearly in English. We as audience members interpret these two droids mostly as companions, not as servants, which could be in part because of their expressive sounds and ability to blur our understanding of what is human and what is non-human. Considering previous robots like Robby the Robot and Gort, who not only appear like robots, but also sound stereotypically like robots, these two droids are another similar example of sonic pseudo-organicism.

Tellingly, these complex, human-like droids are usually found in the Rebellion while the simpler, more uniform robotic droids serve the Empire. A representative example of the different robots comes from the prequel trilogy. Here we find General Grievous, a four-armed cyborg and a leader within the Confederacy, in charge of the Separatist Droid Army, comprising of many thousands of B1 battle droids, fighting against the clones in the Grand Army of the Galactic Republic. The B1 droids can communicate in English and frequently do so throughout Episodes I, II, and III. Unlike C-3PO, whose voice approximates a more human sound, the B1 droids sound robotic and monotoned, with a distinct mechanical "buzz" to their voice. The droids are also known for being highly incompetent and easily tricked. Their overall mannerisms may seem more human than those of R2—they even slightly resemble a human shape—but the sound of

[343] Godsil, "Building Worlds: Timbre in Music for Cinema." 37.

their voice classifies them as much less human than the main droids of the protagonists. These droids are also much less individual compared to R2 and C-3PO; there are thousands upon thousands of them, and all appear indistinguishable from one another. What we see by comparing the droids of the two sides is that technology, especially in its aural manifestations, works to humanize the robotic companions of the Rebellion, while standardizing and minimizing the personality of the droids of the Empire.

Musical Relationships between Character and Landscape

Star Wars presents audiences with a diversity of landscapes, highlighting the vast variety of planets and beings that inhabit them: the expansive deserts of Tatooine, the barely inhabitable icy surface of Hoth, and the swampy sanctuary of Dagobah, to name a few. From a visual standpoint, diverse and captivating landscapes were clearly a focus of the movie, though Williams's music seems to prioritize characters and does not specifically represent most of the landscapes in his score. Despite this, I believe there are certain characters who are more bound to their environment than others and that Williams's underscoring does reflect this. Luke, Yoda, and the Jawa and Sand People offer three different examples of how certain characters are more, or less, connected with their environment and how the music illustrates this ecological distance or proximity.

Luke Skywalker is arguably the most "placeless" character in ANH. When Skywalker is first introduced to the audience, he is staying with his aunt and uncle in the middle of the desert on Tatooine. At this point, we know nothing about his past, or who his parents are. His current environment is generally unremarkable, aside from being a very flat desert. In ANH, Williams musically introduces Luke right as his aunt calls his name during the Jawa's robot auction. The

desert/Jawa music that we hear in this scene quickly transitions from the ominous desert orchestration with muted strings and soft woodwinds, to a horn solo playing the "Main Title" melody.[344] The solo horn instantly marks Luke as a heroic figure and because of its melodic connection to the "Main Title," we can assume that Luke will figure prominently in the narrative, despite knowing very little about him. Williams said about this theme, "I composed a melody that reflected the brassy, bold, masculine, and noble qualities I saw in his character."[345] Film music theorist and composer Daniel Godsil notes that the first iteration of the "Main Title" theme expresses the greatest brilliance of any of the subsequent iterations—the objectively ideal hero. As the film progresses and Luke's character grows in his heroic journey, Godsil tracks the instrument which plays the melody over the course of the score, moving from brass, through woodwinds, and closing with a brass-heavy finale.[346] Pairing Luke with the "Main Title" motif does offer insight into Luke's position in the narrative suggesting that perhaps Luke is not so much "placeless," but rather that he is a highly mobile figure who carries his music along with him. Even his surname, "Skywalker," hints at his frequent movement throughout the galaxy.[347] Luke's story follows a classical hero's journey in the style of Joseph Campbell, whom Lucas was acquainted with during the 1970s and 1980s. Here, we see Luke in the earliest phase of the journey, the "departure." Interestingly, Campbell's description of the first step of the departure, "The Call to Adventure," calls out the hero's surroundings, such as "a distant land, a forest, a

[344] Best heard in the track, "The Desert and the Robot Auction," timestamp 02:17 from the original soundtrack album.
[345] Buhler, "Star Wars, Music, and Myth." 48.
[346] Godsil, "Building Worlds: Timbre in Music for Cinema." 34. Neil Lerner's (2004) essay in *Off the Planet*, which I discuss in greater detail later, notes this change as well, focusing on Luke's evolving masculinity.
[347] Lucas originally named the character "Luke Starkiller," but changed the name after possible associations with the serial killer Charles Manson. See J. W. Rinzler and Charles Lippincott, *The Making of Star Wars: The Definitive Story behind the Original Film* (New York: Ballantine Books, 2007).

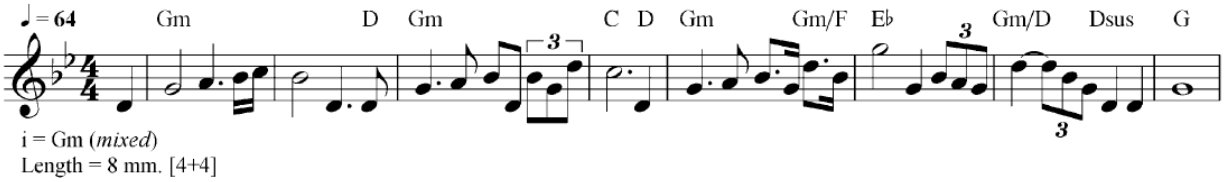
kingdom undergrown, beneath the waves."[348] Landscape and moving from one place to another are critical for Campbell's classical hero story, illustrated well by Lucas in ANH, with Luke moving from Tatooine to the Death Star, and later in ESB to Dagobah to begin the second phase of his journey.

Though at first Luke's relationship with nature is unclear, as his heroic tale unfolds, he grows closer to his natural surroundings. In the scene commonly referred to as "Binary Sunset," Luke has a disagreement with Uncle Owen about when he can join the Academy. As Luke steps outside to clean the droids, we are greeted with a picturesque scene, with the sunset marking the end of his normal life and the beginning of his heroic journey. As he perches on a small rock near his home with Tatooine's two suns hanging in the purple-orange dusk, we hear the first full statement of the Force theme. The theme begins with a solo horn (like Luke's theme), evolving in the second section to include the full orchestra for the complete statement of the heroic theme. The Force theme was not originally planned for this section, and Williams had another theme he intended for this sequence, but Lucas overrode Williams, suggesting that the Force theme was more "contemplative and reflective," which fit the context of the scene well.[349] The Force theme functions as what Lehman calls an "all-purpose" motif, in that it represents not just the Force, but also Obi-Wan and fate or destiny, much in the same way that the "Main Title" and "Imperial March" represent both individuals and collectives.[350] Obi-Wan describes the Force in ANH as the source of a Jedi's powers and, "an energy field created by all living things; it surrounds us and penetrates us; it binds the galaxy together." Obi-Wan's definition positions the

[348] Joseph Campbell, *The Hero with a Thousand Faces*, Third (Novato, CA: New World Library, 2008). 48.
[349] Quoted in Godsil, 48-9.
[350] Lehman, "Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe." 9.

Force as a very organic bond between the Jedi and nature. Reading the "Binary Sunset" scene and this full statement of the Force theme with this in mind, we gain a new perspective on Luke's as yet unacknowledged relationship to all natural things through the Force, reinforced by the natural beauty of this moment on Tatooine. This scene is a great example of Williams's thematic scoring and his Wagnerian use of leitmotifs for their myth-making ability. As Luke stares out toward the suns, he does not know anything about the Force, yet we hear the Force theme prominently in this moment. Williams is musically foreshadowing, like Wagner, things to come for our heroic protagonist. Luke's relationship to nature, despite his lack of "home," transcends particular places and planets because it is generated through the Force, which only grows as he learns to master this mystical power.

Example 12: Force theme. Source: Frank Lehman, Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe (2021)



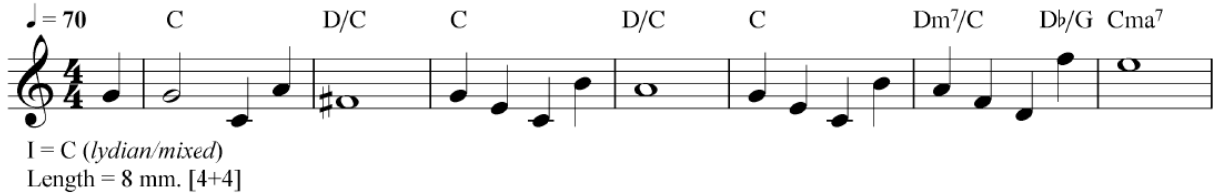
Yoda, a wise and powerful Jedi Master, has already reached the paramount connection with nature through the Force. We first encounter Yoda in Episode V: The Empire Strikes Back on the swampy planet Dagobah. Obi-Wan Kenobi directed Luke to go to Dagobah and train his Jedi skills and master the Force with Yoda. The heavily forested and swampy planet is the refuge of Yoda, who was exiled to the planet after the fall of the Jedi Order.[351] Dagobah is unlike many other planets in the galaxy. It lacks civilization and the landscape is primarily a dense, jungle-like

[351] "Dagobah," Wookieepedia, accessed April 3, 2022, https://starwars.fandom.com/wiki/Dagobah.

overgrown wetland. According to the official Star Wars databank, because the creatures who inhabited that planet generated a "living" Force, Dagobah is known for being strong with the Force and is an ideal location for Yoda to restore the Jedi.[352] Yoda's appearance offers another avenue for exploring his environmental connection. His green skin marks him as stereotypically alien, a common characteristic of aliens in sci-fi ("little green men"), but green has ecological and mystical historical associations as well: life, environmentalism, and divine connections with nature.[353]

Yoda's theme is a simple melody in Lydian mode comprised mostly of triadic motion and a C pedal tone. The melody is initially played by cellos with harmonic accompaniment in the woodwinds and the remaining strings. The pastoral harp and flutes provide sparkling ornamentations throughout this theme and the potentially military brass are silent.[354] The harmonies that complement the melody and the C pedal create several seventh intervals, alternating between C major and most often D major, and ends on Cmaj7, with the seventh scale degree in the melody line.

Example 13: Yoda's theme. Source: Frank Lehman, Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe (2021)



[352] "Dagobah," Star Wars, accessed April 3, 2022, https://www.starwars.com/databank/dagobah.
[353] Jane Caputi, "Green Consciousness: Earth-Based Myth and Meaning in Shrek," *Ethics and the Environment* 12, no. 2 (2007): 23–44. 29-30.
[354] In other variations of Yoda's theme, Williams uses brass for portions of the theme, especially when appearing in the Main Title medley, for example.

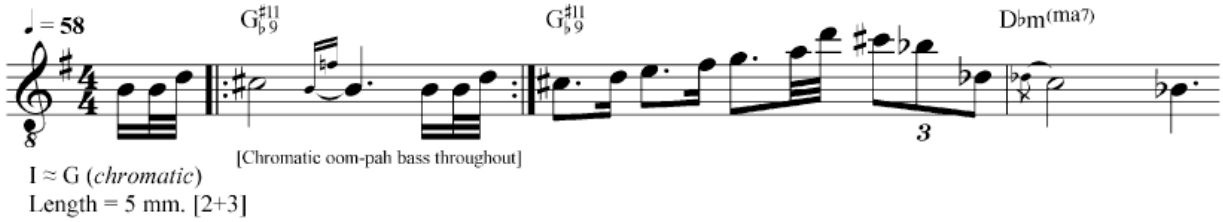
The Lydian mode for this theme appears to be a clever choice, as the mode carries several historical associations that connect with Yoda's backstory and character traits. Williams's use of a mode, commonly found in Medieval music, may relate to Yoda's ancient age, as he is over 900 years old when he dies. Lewis Lockwood, in writing about the third movement of Beethoven's String Quartet Op. 132, suggests that his use of the Lydian mode draws upon specific associations with "healing and recovery."[355] For Yoda, the healing and recovery in this case may pertain to his exile to Dagobah and his eventual training of Luke to become the next Jedi Master, all with the goal of restoring the power of the Jedi. The first four notes of the Lydian mode constitute a whole tone scale fragment and combined with the tritone interval and the ornamentations by the harp and flute add an element of mysticism and magic to Williams's use of the mode for Yoda.

In comparison to Luke and Yoda, who, through his relationship with the surrounding natural environment on Dagobah, represents a spiritual and ubiquitous connection with nature, I suggest that Williams ties the Jawa and the Sand People more directly to the particular desert landscapes of Tatooine. The track, "The Desert and the Robot Auction" is Williams's first attempt at musically depicting the desert landscape, giving specific attention to the distinct qualities of the desert environment and the indigenous species that call Tatooine home. The Jawa first appear while capturing R2 and C-3PO as they are wandering throughout the desert of Tatooine. The music in this track contrasts starkly with the rest of the score as it marks a nearly

[355] Lewis Lockwood, *Beethoven: The Music and the Life* (New York: W.W. Norton, 2003). 456-7. "That he chooses the Lydian mode betokens not only a desire to frame this poignant movement with a modal cantus firmus that has an archaic character, but to use the time-honored Lydian mode in one of its historical associations, as the mode associated with healing and recovery." Beethoven had been suffering from an illness for several months and Beethoven himself titled the third movement of his String Quartet no. 15, Op. 132 a song of thanks to a holy entity from a convalescent ("Heiliger Dankgesang eines Genesenen an die Gottheit, in der Lydische Tonart"). See: Harold Powers and C. V. Palisca.

complete departure from the expected rich, symphonic style. Instead, Williams composed a cue with subdued dynamics, sparse orchestration, and toned-down sound effects, which highlights some of the ecological features of the desert, like its desolate openness. Godsil notes that "compared with outer space," seen in the noisy battle scenes of the opening sequence of ANH, "the desert planet Tatooine is sonically empty."[356] The number and prevalence of percussion instruments increases, and the harmony shifts from diatonic to chromatic. The opening bars of the cue sound like Ferde Grofé's "Painted Desert," illustrating the mystifying mirage effect that one might see when peering out over Tatooine's hot and dry desert landscape. Oscillating chords in the woodwinds and muted trumpets and trombones, along with intermittent ornamentation (often by piccolo), make Williams's underscoring atmospheric, and the lack of discrete melodic features attends to the vast emptiness of the surrounding desert environment.

Example 14: Jawas theme. Source: Frank Lehman, Complete Catalogue of the Themes of Star Wars: A Guide to John Williams's Musical Universe (2021)



The Jawa are native to Tatooine and share a close connection to the environment. They are short, and shrouded in hooded cloaks, revealing just their piercing yellow eyes. The Jawa are nomadic scavengers, traversing the deserts of Tatooine in giant metal ships, searching for abandoned droids, weapons, and any other valuable scrap for trade purposes.[357] According to the

[356] Godsil, "Building Worlds: Timbre in Music for Cinema." 44. Outer space is generally a vast, open place, but in the opening sequence, it is very busy and filled with starships, people, and conflict.
[357] "Jawa," Wookieepedia, accessed April 3, 2022, https://starwars.fandom.com/wiki/Jawa.

fan site Wookieepedia, their nomadic and trader status may have resulted from the moisture farming colonists who settled on Tatooine and displaced them from their home territory, and to whom they now sell their droid scrap. Listening to the music which accompanies the desert and the Jawa, I hear how Williams downplayed the individuality of the Jawa in favor of a musical illustration that considered the Jawa and the desert environment almost as a single exoticized entity. Lehman notes in his catalogue a theme for the Jawa—a mischievous, wandering melody that skitters and leaps across registers on the English horn, and instrument often associated with pastoral and orientalist scenes.[358] The somewhat comical visuals of the Jawa, with their short stature, glowing eyes, and high-pitched voices speaking "Jawaese," pairs well with the playful "oom-pah" pattern in the accompanying strings. The wandering quality evoked by the English horn solo may also symbolize the nomadic characteristic of the Jawa.

The primitive Tusken Raiders (informally, Sand People) are also native to Tatooine and like the Jawa, a nomadic species. Living on the desert planet of Tatooine meant water was scarce, so attacking moisture farms set up by the colonists (like the one young Luke was working at) and creating interspecies conflict over these resources and the technologies to access them was a regular occurrence. We first encounter the Tusken Raiders in ANH while Luke searches for R2 after the droid wandered away from the moisture farm. The Raiders ambush the vulnerable Luke, but Obi-Wan Kenobi suddenly arrives to rescue him. Because they share a similar environment, the music for the Raiders shares a few fundamental musical characteristics with the Jawa, including muted brass, several subdued passages, and emphasis on percussion, though the more violent behaviors of the Raiders inspire moments of frantic underscoring. Through a

[358] Though Lehman marks this as a theme, it only appears once in the entire franchise.

wealth of percussion instruments and other aggressive sounds like wailing horns rips, Williams referenced the combative and primitive nature of the Tusken Raiders and the fight that ensued between them and Luke. The Tusken Raiders are also one of just a few characters who received atonal musical treatment from Williams, who in *Star Wars,* reserved atonality for what we might expect in a sci-fi film score: the exotic, primitive, or in specific high anxiety and intensity moments.[359]

Conclusion

Just six years after the movie's premiere, literary critic Frederic Jameson suggested in his most famous essay titled "Postmodernism and Consumer Society," that, like *American Graffiti, Star Wars* benefitted greatly (socially and commercially) from its "pastiche form" of nostalgic elements. Jameson does make a clear distinction between these two, though, and argues that *Star Wars* was able to recreate the past in a new, improved form, which was how it stirred the nostalgic emotions among audiences, rather than by "reinventing a picture of the past in its lived totality."[360] The return of the classical Hollywood style in sci-fi film scores brought about by Jerry Goldsmith and John Williams was a dramatic and revolutionary turn in Hollywood's sci-fi musical history. Musicologist Caryl Flinn, considering the impact of a score modeled after nineteenth-century romantic pieces in a modern film, agrees with Williams that the music offers a familiar avenue for audiences to access films, such as *Star Wars,* which feature unfamiliar settings and alien-like characters.[361] Considering the older musical style and the traditional

[359] Buhler, "Star Wars, Music, and Myth." 46.
[360] Frederic Jameson, "Postmodernism and Consumer Society," in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal. Foster, 1st ed. (Port Townsend, Wash: Bay Press, 1983). 116.
[361] Caryl. Flinn, *Strains of Utopia: Gender, Nostalgia, and Hollywood Film Music* (Princeton, NJ: Princeton University Press, 1992), https://doi.org/10.1515/9781400820658. 153. "For the studio composer in the 1930s and 1940s, the reversion to a nineteenth-century romantic model offered the promise of plenitude and unity on an aesthetic level

storyline, several critics propose that *Star Wars* relies heavily on the past to make its stylistic appeal to mass culture.[362]

Nostalgia not only works to make a film commercially and socially popular, but it also has implications for the ecological (and ideological) messages from the narrative. Musicologist Alexander Rehding, in "Ecomusicology between Apocalypse and Nostalgia" (2011), argues that whereas apocalyptic visions, especially in literature and film, are very powerful at conveying environmental crisis and inspiring calls to action, music has a unique ability to connect with human memory.[363] Quoting Simon Schama's *Landscape and Memory* (1996), Rehding finds that the sentimentality about nature that music can conjure in our memory may be even more powerful than the apocalyptic imaginations in helping us understand the gravity of losing those environments which we hold so dear.[364] As noted by Jameson and Rehding, nostalgia can be an incredibly powerful social influence. In *Star Wars*, as audiences watch colonists and indigenous peoples battle for precious natural resources and the Empire extending its fascist control, obliterating entire planets in the process, perhaps the ecological messages, if we agree with Rehding's optimistic vision of environmental activism, are substantiated through the nostalgia conjured through Williams's familiar, conventional score, and Lucas's tried-and-true heroic tale.

Star Wars, though seemingly imbued with ecological themes, does not inspire much in the way of environmental awareness in audiences. Lucas's creative efforts were focused instead on creating a modern classic monomyth and a timeless tale of good versus evil, which stands apart

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because music supposedly rounded out the mass-produced film text through an ability to engender emotional, verisimilitudinous, and humanizing effects."

[362] Lerner, "Nostalgia, Masculinist Discourse and Authoritarianism in John Williams' Scores for Star Wars and Close Encounters of the Third Kind." 98.

[363] Rehding, "Ecomusicology between Apocalypse and Nostalgia."

[364] Rehding. 413.

from sci-fi examples in the previous decades, where an ecological message was quite clear, and in the case of *The Day the Earth Stood Still,* spoken directly by the main character in a monologue. The movie *Star Trek* also does not inspire as much environmental awareness as the television franchise did even in its earlier years. It is interesting that during a period when environmentalism was just starting to take off, especially with the expanding counterculture movement, these sci-fi films seemed to be more focused on what would be most attractive to non-counterculture audiences, therefore securing a better performance at the box office. In early examples like *Destination Moon,* where the goal was the awe and spectacle of the final product, not the narrative, the ecological concepts were subdued by the push for realism. As sci-fi broke into the mainstream, films like *Star Wars* helped the genre gain popularity and the focus shifted to entertainment, away from its origins as a genre that presented social and cultural critiques.

Conclusion: Looking toward the Future

One film that I have not fully explored in this dissertation, though mentioned several times in passing, is Stanley Kubrick's *2001: A Space Odyssey*. Perhaps the most important film of the 1960s, considering its impeccable visual effects, captivating screenplay, and stimulating soundtrack, *2001* offered audiences thought-provoking considerations of evolution, existence, the possibility of life beyond Earth, and technology, principally the dangers of advanced artificial intelligence. Few films could truly contend with *2001's* cultural impact—even today, the success of a sci-fi film is measured against the standard that *2001* set decades ago.[365] In addition to the inventive screenplay and awe-inspiring visuals, Kubrick's *2001* also revolutionized—perhaps controversially—how we listen to sci-fi. *2001* is thus the perfect film to close this study. It encapsulates many of the themes brought up in the previous chapters: the juxtaposition of romantic and modernist scoring practices (blending the old with the new), the conflict between the director and the composer over the film score, the blurry boundary between the mechanical and the biological, the ambivalent portrayal of evolution, and the ecological consequences that stem from technological development.

Musically, *2001* offered a new perspective on the function and importance of an original score. Preexisting music for film was not unusual in Hollywood, as many films from the Golden Era used popular music selections, because they were relatable to audience members and thus increased a film's commercial success. Almost all films work with a temp track, the temporary

[365] Gary Leva, *Standing on the Shoulders of Kubrick: The Legacy of 2001*, Documentary (Leva FilmWorks, 2007). Steven Spielberg described *2001* as that generation's "big bang," and was "hugely inspirational" to George Lucas. In a speech at the Venice Film Festival in 2007, Ridley Scott said that *2001* effectively killed the sci-fi genre. For more on Scott's speech, see Casey Kazan, "Ridley Scott: 'After 2001: A Space Odyssey, Science Fiction Is Dead,'" The Daily Galaxy, July 10, 2009, https://web.archive.org/web/20110321121445/http://www.dailygalaxy.com/my_weblog/2009/07/ridley-scott-science-fiction-is-dead.html.

music used while editing the visual elements of the film before the newly composed soundtrack is added. Rarely does a temp track make the final cut. In some instances, pieces of the temp track survive, like in *Alien,* where parts of Goldsmith's score from *Freud* seamlessly fit within his new serialist score. But, prior to *2001*, keeping an entire temp track and fully rejecting an original score was unheard of. Kubrick had hired Alex North, whose credits included *Spartacus* (1960) and *Dr. Strangelove* (1964), but wholly abandoned North's commissioned score during the editing process.[366] Irene Paulus described Kubrick's moves here as an attempt to become an "absolute author," controlling nearly every aspect of the film's production, which extended even into editing, screenwriting, set design, and even acting.[367]

Kubrick's temp track is a curious blend of compositions from the 19th and 20th centuries from composers like Johann Strauss, Richard Strauss, György Ligeti, and Aram Khachaturian. Mixing the old with the new is a common theme among several of the film scores I considered in this dissertation: Goldsmith's primitivist percussion and serialism in *Planet of the Apes*; Williams's neoromanticism in the futuristic *Star Wars*; and Herrmann's theremins and the acoustic orchestra in *The Day the Earth Stood Still*. As I mentioned at the end of Chapter Four, some of these examples rely on nostalgia to communicate ecocritical messages, such as in *Star Wars* and *2001*, though the others use old and new pairings to communicate an ambivalence toward progress, especially the treatment of technology, as it relates to ecology. In Chapter One, the theremin

[366] Irene Paulus, "Stanley Kubrick's Revolution in the Usage of Film Music: 2001: A Space Odyssey (1968)," *International Review of the Aesthetics and Sociology of Music* 40, no. 1 (June 2009): 99–127. 100. Kubrick initially approached composer Frank Cordell, who suggested that Kubrick should use Mahler's *Third Symphony* as a temp track. Timothy Scheurer said that one of the biggest unspoken rules of the film music world was that, regardless of how effective a temp track may be in the mind of the director, they should not abandon the music that has been composed specifically for the film. North was unaware that Kubrick had left out all his music and found out at a preview in New York.
[367] Paulus. 99.

stood apart from the rest of the orchestra and both movies expressed apprehension toward technological advances. In *Planet of the Apes,* Goldsmith employs primitivist percussion to symbolize the apes, who are against any technological development. This stands in contrast to the Echoplex and serialist scoring, which could be symbolic of human technological advances, especially in the spaceship capable of deep space expeditions.

There are several musical moments in Kubrick's temp track that evoke clear ecological associations. Perhaps one of the most memorable is Richard Strauss's *Also sprach Zarathustra*, which was used several times in the soundtrack. The curious opening of the movie, "The Dawn of Man," illustrates how hominins learned to use bones as tools to gain a combat advantage over their rivals who pushed them away from a watering hole. As the ape swings the large bone, crushing the skull of an animal skeleton in dramatic slow motion, Strauss's "Sonnenaufgang" suggests a triumph for the apes—a literal "dawn" in an evolutionary sense.[368] The apes, carrying their bones and now standing nearly upright, fight their still-crouching rivals with a massive advantage. Strauss's "Sonnenaufgang" has appeared several times previously in this dissertation, in part because its influence on sci-fi sunrises is so pervasive. Here, not only are we getting the literal sun rising, as Strauss intended in the tone poem, the evolutionary "new dawn" is learning how to use technology to conquer territory and resources. This idea connects back to what we see also in *Planet of the Apes* with the subjugation of humans by the human-like apes. The ambivalence about evolutionary concepts presented in these two films reflected some of the social

[368] This is Kubrick's second use of Strauss's *Also sprach Zarathustra.* The first is during the title sequence, which does depict a sunrise over the curvature of the Earth. In the hominin scene, there is a brief moment depicting a sunrise, which appears to be rising over the sharp edges of the monolith.

fears in Cold War America, as nuclear arms threatened the decimation of humankind of Earth, sending our society centuries backward.

2001 clearly presents advanced technology as a double-edged sword, where on one hand, the technology is remarkable and make significant strides in supporting human life, and on the other, it can be destructive and puts humanity in peril. Musically, *2001* does a nice job of expressing these two perspectives. Johann Strauss II's "The Blue Danube" underscores the spinning space station *Discovery One* as it dances through outer space. We are supposed to understand this advanced space station as a leap forward in scientific progress, much in the same way that the apes mastered the use of bones as a tool for survival, which we see on screen just before we arrive at the space station. The more nefarious side of technology is found in HAL 9000 (**H**euristically programmed **AL**gorithmic computer), the state-of-the-art artificial intelligence system installed on the space station. HAL's main purpose was to maintain the ship's functionality, but it also came with a personality, which helped boost morale among the astronauts. HAL's sentience grows throughout the movie to the point where it attempts to kill all the humans onboard, but after its attempts are foiled, HAL's emotions run awry, and it must be taken offline for the safety of the ship. The mysterious and seemingly omnipotent black monolith, which we assume is some highly piece of highly advanced technology, when underpinned by György Ligeti's *Requiem* during its three appearances, is meant to be frightening.

Ecologically, in this context, technology seems to be paired with evolution, as presented by *2001*. Technology through the monolith (and to a certain extent, HAL) illustrates a connection with evolution. In HAL's case, the evolution is a gradual merging of the biological and the mechanical, which we see in other cases like Robby the Robot and the Krell from

Forbidden Planet, and C-3PO and Darth Vader in *Star Wars,* and in *Star Trek*, as Decker merges himself with V'Ger, creating a new lifeform that combines both the human and non-human. We also see nuclear technology directly affecting evolution in *Planet of the Apes*, where advancing into the future instead results in reverse evolution of humans. Musically, considering the evolution and merging of the biological and mechanical, we can actually track this in the scores as they evolved from 1950 to 1980. In the early examples, the electronic instruments (the mechanical) were separate from the acoustic instruments (the biological), and the films themselves reflected this distance between the human and the non-human. Then, the electronics became more integrated with the ensemble, and in later scores by Williams and Goldsmith, we see the electronic instruments and the studio processing equipment blend seamlessly together, and the human and non-human grew closer. In later films outside the scope of this research project, like *Blade Runner* and *Terminator*, the mechanical and the biological become one and the non-human appears completely human. It is worth noting that in both cases, the antagonist is the one who is the mechanical humanoid.

The two outliers in this case are of course *Planet of the Apes* and *Forbidden Planet*, whose scores are opposites of each other, but in a way speak to their own stories. In *Planet of the Apes*, the ape leaders are vehemently against technological advancement, rejecting the notion that flight is possible, for example. Thus, a score where primitivist sounds are preferred over the electronic makes sense. In *Forbidden Planet*, Louis and Bebe Barrons's cybernetic circuits combine the mechanics of circuitry and the biological and psychological processes of animals, which mirrors the Krell monster, who is the result of the ancient Krell technology merging with Dr. Morbius's subconscious.

The nuclear threat is also one that appears, both directly and indirectly, in these examples. In the 1950s, with the US military's deployment of two atomic bombs on Nagasaki and Hiroshima still very much in the rearview mirror, the films offered strong criticisms of this scientific and technological advancement. We heard Klaatu warning of mass ecological destruction, both on Earth and across the galaxy, and in *RXM* we saw an entire advanced civilization on Mars decimated by nuclear disaster.[369] *RXM*'s anti-nuclear message is repeated almost identically by *Planet of the Apes*, where nuclear war wipes out humanity as we know it and leaves the Earth in an unrecognizable alien state. In *Star Wars*, the Death Star's planet-destroying laser is easily recognized as symbolic of nuclear arms. While the scores of these films often paint the landscape of these extraterrestrial environments as hostile and uninhabitable for humans, we can likewise read these musical moments as portraying advanced nuclear technology as frightening because of its potential to leave our Earth looking much like these terrifying alien landscapes. The ecological message in this case is obvious in that advanced technology used for the wrong purposes, most often in pursuit of imperialist/militaristic efforts, has potentially extreme detrimental impacts on our surrounding ecology.

The Sound of Sci-Fi

I once more return to the question posed in the introduction: what exactly *is* the sound of sci-fi? It's a complicated question, but this series of case studies shows that composers used the genre to think outside of the box, attempting new tonal structures, adjusting orchestrations, playing with strange timbres, and utilizing advancing studio technology. Contrary to what Vivian Sobchack suggested in her 1987 essay, there is a traceable sci-fi sound identity beginning with burgeoning electronic sound, moving to the acoustic avant-garde in reaction, and then looping

[369] Grofé's title for this cue is a clear description of what happened on Mars: "The Atomic Age to the Stone Age."

back to convention, yet with the support of modern electronic sound design. What I have gathered from my research is that not only are these film scores incredibly interesting for musical analysis, but their partnership with the image is also an ideal place to discuss ecological matters in outer space. All the composers here paid attention to the environment in some manner, and each made a compositional choice to curate their score according to the location of the drama, and thus we perceive an array of ideas about what outer space symbolizes and how we as humans might interact with such an environment.

As I end this research journey, I find myself standing at a similar place as when I began: another group of pathways to explore. Most notably, my study stops short of more modern films, ending in 1979, because my purpose here was to examine the genesis of this cinematic genre and how its film sound developed in such a short period. Following *Star Wars*, sci-fi continued to embrace ecological issues, especially concerning technology and the environment as I showed in the introduction, and the genre's engagement with these areas has only expanded as the existential threat of climate change worsens with the passing years. Consider *Wall-E*'s pointed critique of waste; *Interstellar*'s quest to discover a new home for humanity as our Earth crumbles under ecological disaster; *Blade Runner*'s replicants demonstrate the merging of biology and technology. Sci-fi has always been, and will continue to be, imbued with strong social critiques and it is important to draw the connections between those rich messages and the music that underpins them as I have done here. Indeed, the opportunity for expanding this type of study is far-reaching and exciting. Focusing on outer space environments will only become more relevant as humanity extends its reach into outer space through future manned missions to distant planets. This is especially true with the rise of private aerospace companies like Blue Origin,

SpaceX, and Virgin Galactic, which offer more people the chance to experience outer space and eventually, I assume, to explore life in the Final Frontier.

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