

ARCHIVING “THE BEST OF OURSELVES” ON THE VOYAGER GOLDEN RECORD:  
RHETORICS OF THE FRONTIER, MEMORY, AND TECHNOLOGY

by

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Archiving the “Best of Ourselves” On the Voyager Golden Records: Rhetorics of the Frontier,  
Memory, and Technology

Thesis directed by Associate Professor John M. Ackerman

This thesis proposes a rhetorical criticism of the curation process and material medium of the Voyager Golden Record, a phonograph archive of sounds and images from Earth travelling through interstellar space. The study of this archive and its related texts explores the rhetorical, posthuman intersections between evolving notions of technology, cultural memory, and the “frontier of science” metaphor. The records do not simply indicate a complex archive, but rather a new practice of curation and commemoration that reveals it matters not only who remembers on behalf of all of us—but also *what* remembers, and why. By using posthuman theories to buttress concerns of emergent colonialism in space, this study examines the implications of how such an ambitious technological archive constructs, and participates in, an emerging commemorative practice in science that, I argue, enacts a prosthetic of the human—a technological memory prosthetic that has the posthuman capacity to remember and speak on behalf of all of us as it extends outward into space.

*Keywords:* memory, frontier, technology, archive, posthumanism

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## CHAPTER I

INTRODUCTION: ON THE FRONTIER OF MEMORY, TECHNOLOGY, AND THE  
VOYAGER GOLDEN RECORDS

“In five billion years, all human beings will have become extinct or evolved into other beings, none of our artifacts will have survived on Earth, the continents will have become unrecognizably altered or destroyed, and the evolution of the Sun will have burned the Earth to a crisp or reduced it to a whirl of atoms. Far from home, untouched by these remote events, the Voyagers, bearing the memories of a world that is no more, will fly on.”

—Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*

Until recently, the study and practices of rhetoric and human communication in the West have traditionally been oriented as an Earth-bound, human-to-human endeavor.<sup>1</sup> It would not be subversive, therefore, to say that this work is meant for human readers. Nor would it be shocking to point out that this study is, like many others, made possible via myriad technologies with which we frequently merge and mediate our various communicative undertakings: Internet, laptop, printer, cloud servers, e-mail, paper and pen, stapler. Oftentimes the development of our technological objects rests in the hands of specialized teams of scientists and engineers who work together to bring the equipment into being for us. Over time, these technologies have, for better and for worse, allowed people to publicly and privately communicate, organize, store, and circulate information for various reasons—all of which has typically been for, to, and by other humans.

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<sup>1</sup> Unless we're counting practices of prayers to deities or being a part of a séance, etc. That's another paper for another time.

However, as humans evolve, so do technologies (or, arguably, it may be the other way around). Given this technical progression, we currently find ourselves in a remarkable historical moment wherein humans are no longer the only audience imaginable for discourse. Furthermore, humans are no longer the only *speakers* imaginable for engaging in discourse; as this thesis will theoretically propose, complex technologies are also capable of such engagement. Indeed, in the space sciences specifically, information and communication is not only sent outward, but also upward into the deep dark void beyond the stars. Government-funded space organizations (e.g., National Aeronautics and Space Administration, United Launch Alliance, European Space Agency) and private aerospace companies (e.g., Blue Origins, SpaceX, Virgin Galactic) have been designing technologies that takeoff into the atmosphere to explore uncharted frontiers of space and, in many cases, to send technological messages meant for other intelligent lifeforms in the universe. As I will explain in more detail throughout the following sections, this thesis will therefore be concerned with rhetorically examining how these emergent, technological regimes of communicative, commemorative practices are enacted via scientific objects. How do scientists speak and remember for us? How do *technologies* speak and remember for us? In her book *On the Frontier of Science*, Leah Ceccarelli analyzes how the rhetorical impetus for scientists engaging in these practices is only increasing, and that their motivation is predominantly coached by the influence of “the frontier” metaphor as circulated in Western science. According to Ceccarelli, this persistent metaphor encourages scientists to see themselves as “risk-taking, adventurous loners, separated from a public that both envies and distrusts them, but that nonetheless comes to rely on the profitable discoveries they bring back from the frontiers of research.”<sup>2</sup>

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<sup>2</sup> Leah Ceccarelli, *On the Frontier of Science: An American Rhetoric of Exploration and Exploitation*. (East Lansing: Michigan State University Press, 2013), 4.



Writing with this frontier metaphor, in this study I will examine how acts of scientific, technological curation—whereby memory technologies are emissaries of “us” cast into the unclaimed territories of space—implicitly (and sometimes explicitly) advance about ideas of audience, discourse, and human futurity. Indeed, when dealing with futures, presumption is the name of the game (i.e., to bury a time capsule is to presume someone in the future will remember to dig it up). In Chapter IV, I examine how these presumptions, as extended into an unfathomable futurity, seem to indicate more about us than the carefully archived material itself. For now, I am interested in tracing the ways in which these commemorative space technologies “speak” for, and to, *others* in complex ways while being shaped by the frontier trope.

Interestingly, there is currently a public petition circulating now—called the One Earth New Horizons Message Initiative—asking NASA officials to allow for the digital curation and subsequent upload of globally crowdsourced messages from people of Earth onto the New Horizons spacecraft.<sup>3</sup> The global message would be assembled by scientists ultimately for the interception and interpretation of extraterrestrials in some distant futurity. The slogan for this popular petition— “Are you on board?”—is a clear, clever double entendre: the question is not only whether you support the initiative itself, but also if “you” as a human on Earth are, by digital mediation, represented and commemorated on board the New Horizons space probe. At the time of this writing, NASA is reviewing the initiative’s proposal. Regardless of whether or not NASA approves, the mere fact that the initiative has garnered so much international attention is significant because it demonstrates the momentum behind using science and technology to send archived messages (of “us”) to other worlds, a thematic concern that will be discussed at length in the chapters to follow.

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<sup>3</sup> More information on the pending initiative can be accessed at <http://www.oneearthmessage.org>.

These celestial endeavors, of course, are not the brainchild of twenty-first century scientists. Instead, ideas around commemorating and archiving human life initially transpired mid-century during a particularly precarious phase of the Cold War when the two superpowers, the Soviet Union and the United States, were armed to the teeth with nuclear weapons; each country was fully prepared to drop bombs on the other and ultimately usher in an atomic apocalypse. From this dangerous, tense stalemate arose other, less planet-ending battles for dominance: What came to be known as the Space Race was the direct result of a growing technological competition between the Soviet Union and the United States. This growing military-industrial incentive to claim total superiority via spaceflight performance and cosmic discovery was made abundantly clear by President John F. Kennedy in his speech at Rice University in 1962. In explaining to the crowd—and to the nation at large—the incentive to put a man on the moon, he emphasized:

Those who came before us made certain that this country rode the first waves of the industrial revolutions, the first waves of modern invention, and the first wave of nuclear power, and this generation does not intend to founder in the backwash of the coming age of space. We mean to be a part of it—we *mean to lead it*. For the eyes of the world now look into space, to the moon and to the planets beyond, and we have vowed that we shall not see it governed by a hostile flag of conquest, but by a banner of freedom and peace. We have vowed that we shall not see space filled with weapons of mass destruction, but with *instruments of knowledge and understanding* [emphasis added].<sup>4</sup>

Kennedy's speech, loaded with frontier rhetoric, will be addressed again in the subsequent chapters, but for now the takeaway is that we did, indeed, become a part of the 'age of space' and, in many ways, we led it. The United States soon began filling space with various instruments (although whether or not they were all 'of knowledge and understanding' is up for debate). Arguably one of the most unique instruments sent out during this time were the Voyager 1 and 2 probes, twin spacecraft that were built to navigate the uncharted regions of our solar

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<sup>4</sup> A complete transcript of the John F. Kennedy Moon Speech at Rice Stadium on September 12, 1962 can be accessed at <https://er.jsc.nasa.gov/seh/ricetalk.htm>.

system and beyond. Unlike all other spacecraft sent into space before it, however, the Voyagers would be the very first to carry a material, commemorative archive of Earth and its inhabitants beyond our solar system.

I want to briefly note here that commemoration is, in many ways, a memory act of care and preservation. In 1903, Alois Riegl published the essay “The Modern Cult of Monuments,” in which he ascribes memory values to monuments and other objects (often of art) that are expressions of the particular time of their articulation. Upon tracing the changing place of monuments in Western culture, Riegl distinguished three kinds of ‘memory values’ in his work. The first—commemorative value—I want to address. Commemorative value applies only to intentional monuments; echoing ancient Greek monumental time, Riegl claims that “the purpose of deliberate commemorative value is to keep a moment perpetually alive and present in the consciousness of future generations.”<sup>5</sup> This intention of keeping memory ‘perpetually alive,’ is a motive that, as I will explore in later chapters, is an act of care. Indeed, as Charles Scott notes in his essay “The Appearance of Public Memory,”

“to speak of culture and memory is to speak of care. Care is a disturbing word. In its history of meaning it suggests loss and grief—it derives from the Old High German word *kara*, which means ‘lament.’ Blended into its meaning are experiences of uncertainty, apprehension and responsibility. ‘Care’ contains a suggestion of anxiety and watchful attention.”<sup>6</sup>

Even the root for memory, the Greek *mermeros*, as Scott notes, means ‘to care for’; in this way, both culture, with its sense of cultivation, and memory entail a responsibility to re-present the

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<sup>5</sup> Alois Riegl, “The Modern Cult of Monuments: Its Character and Origin” in *Historical and Philosophical Issues in the Conservation of Cultural Heritage*. Stanley-Price N, Talley MK and Melucco Vaccaro A (eds) Los Angeles: Getty Conservation Institute, 1996: 69-83.

<sup>6</sup> Charles Scott, “The Appearance of Public Memory” in Kendall R. Phillips (Ed.), *Framing Public Memory*. Tuscaloosa, AL: University of Alabama Press, 2004: 150.

past and, moreover, to re-present the past in a stable and (seemingly) immutable way.<sup>7</sup> This ethic of care, accompanied by a sense of cultural anxiety and watchful attention, will come in to play as I reveal the various rhetorical exigencies of commemorative artifacts taken up by scientific, exploratory endeavors in space.

### **The Voyagers Set Sail**

It was a clear day in August and September of 1977, respectively, when a few hundred spectators gathered at Cape Canaveral Air Force Station to watch as scientists and engineers of the National Aeronautics and Space Administration (NASA) successfully sent two twin probes roaring into blue Floridian skies. Ann Druyan, the Creative Director for NASA's Voyager Interstellar Message Project, was present for the launch. Reflecting on the experience of seeing the rocket tear into the atmosphere, Druyan wrote, "Watching Voyager flash out of our sight, and eventually out of our jurisdiction, on its one-way ticket to who-knows-where, one hopes that, like Marco Polo, it will find itself at the gates of some ancient and great civilization."<sup>8</sup> Her hope, laden with rhetoric of colonial expansion and the frontier, was not necessarily unique, since the idea of making contact with some distant, alien civilization seemed to be on the rise during the mid to late seventies. In fact, only a few years prior to the launch, in 1974, radio astronomers used the Arecibo radio telescope in Puerto Rico to send out a message into deep space.<sup>9</sup> Their message, containing rudimentary information about humanity and Earth, was sent to a nearby star cluster with the hope that some extraterrestrial intelligence might receive and decipher it. Then, almost around the same time as the Voyager launch in mid-August of 1977, "Big Ear"—a

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<sup>7</sup> Ibid.

<sup>8</sup> Carl Sagan, Frank Drake, Ann Druyan, Timothy Ferris, Jon Lomberg, and Linda Salzman Sagan, "A Voyager's Greetings" in *Murmurs of Earth: The Voyager Interstellar Record*. (New York: Random House, 1978), 124.

<sup>9</sup> Ibid., 6

radio telescope operated as part of the Search for Extra Terrestrial Intelligence (SETI) project—caused both public excitement and trepidation when it received a strange radio signal emanating from deep space, thought to be of extraterrestrial origin.<sup>10</sup>

### **Extraterrestrial Exigencies**

Notably, in prior eras of U.S. history, the notion of humans making contact with sentient beings from outer space remained a plotline lodged firmly in the realm of science fiction.<sup>11</sup> However, with the dawn of aerospace science, radio astronomy, and the ambition of the Voyager mission all intersecting and coming to fruition around the same time, such fictional conjectures of alien communication began to influence its more concrete possibility, especially in the minds of U.S. scientists and engineers. This is why the Voyager mission was exceptional as a space mission: due to an opportune alignment of planets orbiting on the same geometric plane, the two probes would be able to execute a never-before executed “grand tour beyond the Moon”<sup>12</sup> using gravitational assists before, at long last, venturing forth into the unexplored expanses of interstellar space. In the face of such an impressive opportunity, Carl Sagan admitted that the scientists at NASA found it was “hard to resist sending something out ourselves.”<sup>13</sup> Rather than emitting radio waves at star clusters in space, scientists would instead be able to send a tangible, physical emissary for interstellar beings to someday intercept. And ‘we’ would be on board.

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<sup>10</sup> This event is commonly referred to as the "WOW!" signal, named after the comment made by a volunteer working on the project.

<sup>11</sup> That is to say, the actualized idea of communing with aliens was an idea influenced by popular sci-fi movies and novels (H.G. Wells’ *War of the Worlds*, *The Body Snatchers* by Jack Finney, *Childhood’s End* by Arthur C. Clarke, *The Left Hand of Darkness* by Ursula Le Guin, *The Martian Chronicles* by Ray Bradbury, etc.). I expand further on this idea in Chapter II.

<sup>12</sup> Jim Bell, “Message in a Bottle” in *The Interstellar Age: The Story of the NASA Men and Women Who Flew the Forty-Year Voyager Mission* (New York: Dutton, 2015): 71.

<sup>13</sup> Carl Sagan et al., *Murmurs of Earth*, 7.

Thus the Voyager Mission began, and was publicly touted as an unparalleled, long-term operation meant to navigate the outer reaches of the solar system in order to harvest more precise information about the interplanetary environment and, potentially, the ancestry of our own planet. Over the course of decades, both probes were set to conduct their respective, mathematically complex flybys of the Jovian planets (Jupiter, Saturn and its moons, Neptune, and Uranus). During these missions, Voyager 1 and 2 would routinely send messages back to Earth; their automated correspondence included data on solar weather patterns, magnetic field and cosmic radiation measurements, photographs of the planets, radio feedback, and other information<sup>14</sup> that would inevitably expand scientific understanding of our vast solar neighborhood. Earth-bound messages from the Voyager probes were certainly met with awe and excitement back at NASA (and they still are today; even after forty years; to the surprise of many, both probes are still operational and relaying information back to Earth as I write this).<sup>15</sup> Fueled by small nuclear generators that convert heat into electricity, the Voyager 1 and 2 systems were so efficiently engineered that Voyager 2 only turned off its data tape recorder in 2007 and transferred to its backup thrusters (not its main ones, remarkably) in November 2011.<sup>16</sup> They were also the first spacecraft to ever use computers that could be reprogrammed *after* launching into space; this asset is now a customary aerospace design for most, if not all, twenty-first century spacecraft.

Despite their impressive performance and capabilities, there is one message that the spacecraft will never send back to Earth, and a piece of the design that can never again be updated or reprogrammed. As the probes each race further away from our solar system at over 10

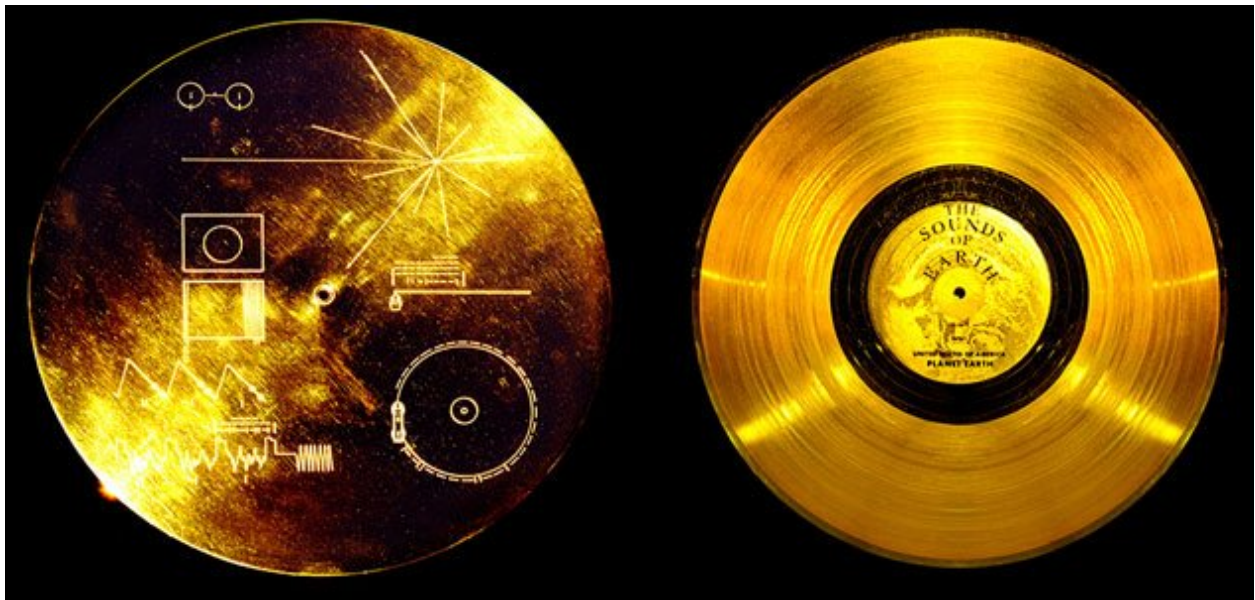
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<sup>14</sup> Ibid.

<sup>15</sup> For more information on the Voyager's current operational status, see NASA's Jet Propulsion Laboratory page at <http://voyager.jpl.nasa.gov/mission/didyouknow.html>.

<sup>16</sup> Refer to NASA's page at <http://voyager.jpl.nasa.gov/spacecraft/spacecraftlife.html> for more on the Voyager spacecraft's mission timeline.

miles per second, the solitary probes will each carry with them a shining, commemorative artifacts from Earth, dedicated “to the makers of music – all worlds, all times,” known as the Voyager Golden Records.



**Figure 1** | Imagery of instructions pictured on the front (left) and the golden, data-encoded grooves (right) of Voyager Golden Records (image courtesy of NASA)

### **Object of Study: The Voyager Golden Records**

For this study I will focus specifically on the Voyager Golden Records, a twin set of gold-plated phonograph records (see Figure 1)—currently mounted on the side of each Voyager spacecraft (see Figure 2)—that contain encoded, curated archives of Earth sounds (laughter, ocean waves, wind, rockets), music, images, diagrams and maps, diplomatic greetings (in many languages), mathematic formulas, and other selected information meant to communicate and commemorate life, history, and cultures on Earth. The medium itself is key because, as Jonathan Sterne points out, “As people and institutions have developed new media and new forms of representation, they have also sought out ways to build additional efficiencies into channels and to economize

communication in the service of facilitating greater mobility.”<sup>17</sup> I want to examine how this medium facilitates greater mobility of commemorative practices in the sciences particularly because, again as Sterne explains, “these practices...take on a cultural life separate from their original, intended use”<sup>18</sup> over time. The Golden Records undoubtedly have taken on a life separate from their original intent, as this thesis seeks to reveal.

Upon explaining Voyager and its golden payload, Linda Salzman Sagan—who was principally in charge of the ‘Greetings from Earth’ aspect of the record’s curation—wrote, “Voyager has been compared to a bottle with a note inside tossed over the railing of a ship at sea. It is, though the bottle is custom-built and the note scribbled in computer instead of pencil. We are tossing our bottle into the void of the sky.”<sup>19</sup> Their cosmic message in a bottle was created with an alien Other audience in mind—oriented in futurity—while also remaining steadfastly conscious of a more present, terrestrial-bound audience who would be aware of the record’s content (and perhaps write a thesis on it). As an object of study, these records are overwhelmingly dynamic and layered; there is much to examine, especially from a rhetorical perspective. One could approach the content of the records via visual, sonic, material rhetoric etc., or examine its assumptions of alien audiences, their concerns over a sense of celestial security, the public reactions to the collection, its assertion of space colonialism, the historical contexts and the Cold War, feminist concerns of the patriarchal overtones, the sociopolitical exigencies of the space technology itself, etc. The list goes on. Maybe I will write those studies another day, but as an overarching schema for this work, I intend to rhetorically engage with work that enriches our understanding of contemporary memory work as executed through

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<sup>17</sup> Jonathan Sterne, “Format Theory” in *MP3: The Meaning of a Format*. (Durham: Duke University Press, 2012): 5.

<sup>18</sup> *Ibid.*

<sup>19</sup> Linda Salzman Sagan et al., in “Greetings from Earth” in *Murmurs of Earth*, 133.



external, technological artifacts. Indeed, whereas modern rhetorical scholarship is comfortable with analyzing places and artifacts of memory (e.g., museums, statues, memorials, archives, canonical speeches, buildings, signage and so forth), this particular study hopes to extend those instances of materialized memories to things, to technologies of an even wider array and distribution—and certainly to complex, scientific, technological objects and systems that announce as their very purpose, the commemoration of the ‘best of ourselves.’

Furthermore, the technological aspect of memory will be important to this study because, as Bernard Stiegler claims, technology is “humanity’s very destiny: the two are bound together in a relationship that Gilbert Simondon calls the “transductive” (a relationship whose elements are constituted such that one cannot exist without the other—where the elements are co-constituents): humanity and technics are indissociable.”<sup>20</sup> Moreover, if we also agree with Stiegler’s assertion that “humans are prosthetic beings,”<sup>21</sup> then this commemorative technology, as it expands into space via the Voyager probes, could arguably be seen as a technical extension of humanity—indeed, an extension of ourselves. If so, it is important to listen critically to the archive, to the ways in which such a grand prosthetic seeks to speak on our behalf.<sup>22</sup> I should add here that, in a way, all major archives do this work—indeed, as things like museums, monuments, memorial sites expand our memories outward in a state of dispersion, according to Bradford Vivian, they do “not exist in the form of a unified or stable preserve...[instead] we activate the fickle and nomadic character of memory whenever we discuss our memories with others, whenever we preserve them in writing, images or sound, thereby ensuring that our memories subsist in more than one place or form, in multiple ‘inheritances’ or ‘forms of

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<sup>20</sup> Bernard Stiegler, *Technics and Time, 2: Disorientation (Meridian: Crossing Aesthetics)*. Translated by Stephen Barker. (Stanford: Stanford University Press, 2009), 2.

<sup>21</sup> Ibid.

<sup>22</sup> Perhaps this concern adds rhetorical weight to the New Horizons question: “Are you on board?”

enactment’ at once.”<sup>23</sup> However, as I will discuss in upcoming chapters, through this complex, networked *dispersion* of memory, I invoke the idea of the archive ‘*speaking* on our behalf’ across such dispersion in a more overtly posthuman sense (compared to what the colloquial implication of ‘speak’ might originally suggest).

Therefore, in order to punctuate the complex relationship between humans, memory, and technology, I take up a rhetorical study of the Voyager Golden Records as an evolving technological *memory* practice shaped in critical ways by the persistent influence of ‘the frontier’ metaphor in Western science (to be addressed in Chapter II). Indeed, I approach these gilded archives as technologically-mediated extensions of memory that—similar to other commemorative assemblages here on Earth (e.g., photos archived on Instagram, roadside crosses, plaques on buildings, flowers at a gravesite)—seek to commemorate (a selected facet of) the self while also presuming a future and an audience (possibly known and unknown), a *recipient* of the commemorative practice. I argue that the records as a material, memorial act taking place on the ‘frontier’ of space (as discussed at length in Chapter III) are advanced, technological archives of commemoration that have been instigated by elite scientists in order to extend “us” into the unknown, to pass on knowledge of our existence for the benefit of future humans and future Others as well. As I discuss in the chapters to follow, the archive itself makes a grand appeal to unknown futures and beings: *this is us; we send our best*.

Overall, then, my concerns regarding the records—the symbolic value of the technological gesture via the commemoration to ‘the best’ of humanity, as motivated by the allure of the frontier metaphor—are all fundamentally rhetorical in their investment in the affairs of hierarchies, imagination (both public, scientific), audience, and progress. And all the while, these

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<sup>23</sup> Bradford Vivian, *Public Forgetting: The Rhetoric and Politics of Beginning Again*. (University Park: Pennsylvania State University Press, 2010): 126.

records now drift through the vastness of space as an interstellar archive of Earth and, as Carl Sagan put it, “Long after [Voyager] transmitters have died, far beyond the heliopause, in the remote future two phonograph records containing greetings from the planet Earth will be inexorably speeding on.”<sup>24</sup>

It is worth pausing to add that the Voyager project, although significant in its celestial endeavor, was not the first to engage in the practice of adding commemorative, communicative content about Earth to the side of a spacecraft. The practice originally began with NASA’s Pioneer 10 and 11 missions, which launched in 1972 and 1973. Ultimately the two Pioneers would become the first space probes in human history to ever leave the solar system and enter interstellar space. Aboard each probe is a small, golden plaque that succinctly describes three things: what humans look like, where Earth is located in the solar neighborhood, and the date the mission began. These brief graphical messages were quite limited in their communicative scope and substance, and—according to Carl Sagan, who was in charge of that project as well—were openly construed as mere “greeting card[s] to our remote descendants.”<sup>25</sup>

For the Voyager mission, NASA would not settle for sending another simple greeting card. The flight operations team knew ahead of time that, since the two probes would continue on their trajectories after completing their interplanetary missions, the two spacecraft were predestined to fly far into the expanses of interstellar space forever, untouched and preserved for billions of years, thanks to Newton’s first law of motion.<sup>26</sup> Upon this realization, scientist and engineers at NASA acknowledged there was a possibility that the Voyagers could someday be

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<sup>24</sup> Carl Sagan et al., “The Sounds of Earth” in *Murmurs of Earth*, 229.

<sup>25</sup> Ibid.

<sup>26</sup> The law dictates, in brief, that an object at rest stays at rest—and an object in motion stays in motion with the same speed and in the same direction—unless acted upon by an unbalanced force.

intercepted by extraterrestrial beings—or even a variant of the human species in some distant, unfathomable futurity.<sup>27</sup>

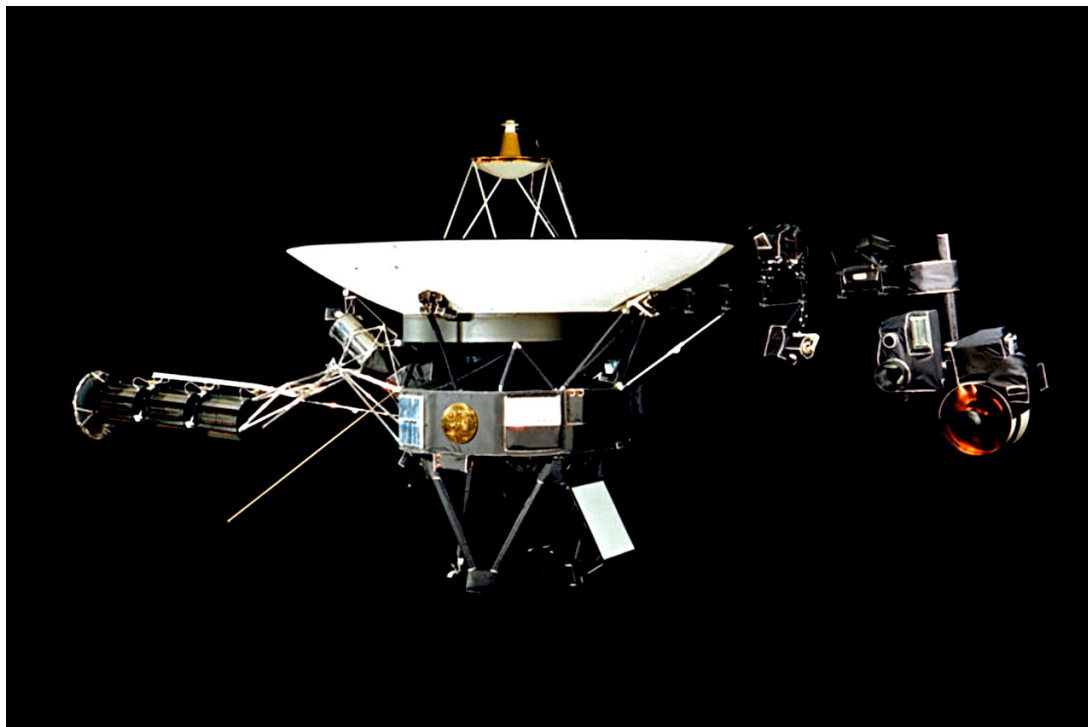


Figure 2 | Golden Record on board the Voyager spacecraft (image courtesy of NASA)

With the realization that such a spectacular, sci-fi scenario could potentially become reality, Dr. John Casani, project manager of the NASA Voyager project, proposed that the team send up something more than a simple plaque in order to take full advantage of traveling into the interstellar frontier, something physical to attach to each probe (see Figure 2). Without wasting any time, in December 1976 Casani asked the publicly well-known astronomer and Director of Cornell University’s Laboratory for Planetary Studies, Dr. Carl Sagan, to “organize the effort to place an appropriate message aboard the two Voyager vehicles,”<sup>28</sup> and ultimately carry it into the

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<sup>27</sup> Carl Sagan et al., *Murmurs of Earth*, 290.

<sup>28</sup> Carl Sagan et al., *Murmurs of Earth*, 8.

stars.<sup>29</sup> Sagan, ever captivated by the search for extraterrestrial life, agreed to help Casani. Plans for the enterprise—administratively branded as the Voyager Interstellar Message Project—began immediately. Sagan later recalled thinking about the endeavor, writing that “it seemed a pleasant and hopeful prospect to place some message for a possible extraterrestrial civilization aboard the Voyager spacecraft.”<sup>30</sup> After jumping through several bureaucratic hoops to receive approval from NASA about using the phonograph idea, Sagan organized a team and divided up the responsibilities. Over the next few months, people outside NASA (e.g., Stephen Toulmin, Arthur C. Clarke, Isaac Asimov) would generate content, offer help, ask questions, and provide critical insight for the team; however, the project itself was principally comprised of six people with varying degrees of specialty: Carl Sagan, Frank Drake, Ann Druyan, Timothy Ferris, Jon Lomberg, and Linda Salzman Sagan. The initiative of sending a representative archive of life on Earth into space fell in the hands of six United States citizens. Their goal was to curate a complex and ambitious archive of our world and send it to space for other intelligent lifeforms; over the course of several months, it would become what I argue to be a technological memory object: a carefully curated, sensory record of—and tribute to—the “best” of life on our planet.<sup>31</sup>

Indeed, the phonograph intentionally represents what one of the main collaborators called “the best of ourselves.” During the curation process, as discussed in Chapter II, the team sought to exclude the darker, more flawed aspects of humanity that they deemed unworthy of commemoration (things like war, famine, violence, religion, which will be addressed in Chapter II). Ultimately, by the end of the project, the twin Golden Records were successfully mounted on the Voyager 1 and 2 launch vehicles (see Figure 2), both of which carried identical versions of the following materials encoded in the audio spectrum:

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<sup>29</sup> Ibid., 9

<sup>30</sup> Ibid.

<sup>31</sup>

- 118 photographs of our planet, ourselves, aspects of our civilization (encoded images, as well as physical package of color photos)
- approximately 90 minutes of the world's best music, according to the curators and their recruited ethnomusicologists
- an evolutionary audio essay on “The Sounds of Earth” (e.g., recordings of avalanches, an elephant's trumpet, a kiss, laughter, thunder, bird songs, rocket launch)
- Greetings recorded in 54 human languages (and one whale language)
- Administrative salutations from the President of the United States and United Nations, along with a list of Congress members

The team wanted to make sure each part of the record received a substantial amount of content without using up too much memory. However, despite the Voyagers' impressive room for memory storage (at least by standards in the mid-seventies) today an iPhone 5 phone with 16 gigabytes of memory has about 240,000 times more memory than one Voyager spacecraft (which has 69.63 kilobytes of memory, each).<sup>32</sup> At the time of the project, technology was progressively advancing toward—but not yet fully operating within—the realm of digitality; they were still working in analog mode. Therefore, using a metal phonograph record as its medium was determined to be the most efficient option for storing and communicating the data, at least compared to a simple plaque, because the metal phonograph record could store more encoded information as “an engraved plaque that can carry sounds.”<sup>33</sup> (The materials of the phonograph will be discussed in Chapter III.) In regard to such technical format, Sterne explains how, historically, “we see that writers tend to associate telephony with telephones, radio with

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<sup>32</sup> For more information on the Voyager's memory storage compared to iPhones, go to the NASA website: [https://www.nasa.gov/mission\\_pages/voyager/multimedia/vgrmemory.html#.WLJLarGZPBI](https://www.nasa.gov/mission_pages/voyager/multimedia/vgrmemory.html#.WLJLarGZPBI)

<sup>33</sup> Carl Sagan et al., *Murmurs of Earth*, 67.

radios...sound recording with phonographs...yet the mediality of the medium lies not simply in the hardware, but *in its articulation with particular practices*, ways of doing things, institutions, and even in some cases belief systems [emphasis added].”<sup>34</sup> Thus it would also seem that, although the technical measurements of memory are not to be dismissed, Voyager’s memory capacity is not only achieved by its bytes, but also by its commemorative practices as enacted by its makers, its metaphors, by its murmurs of Earth drifting through the cold, dark expanse of space indefinitely.

### **Murmurs of Earth**

The practice and process of archiving ‘murmurs’—the collected and mediated sights, sounds, and greetings from Earth—took place over a relatively short amount of time (several weeks) and, for the duration of the project, was largely kept out of the public eye. Therefore, a year after the Voyagers were launched, Random House published a book in 1978 written by all the team members who produced the Golden Records. The book is no longer in print today, but at the time it functioned to provide a curious public with a more thorough understanding of the team’s collaboration and overall approach, and to generate civic excitement about the extraterrestrial aspects of the Voyager mission. The book, titled *Murmurs of Earth: The Voyager Interstellar Record*, (henceforth referred to as *Murmurs*) was intended to be “an account, written by those chiefly responsible for the contents of the Voyager Record, of why we did it, how we selected the repertoire, and precisely what the record contains.”<sup>35</sup> Every chapter therein is a first-person account written by each of the collaborators who was in charge of their respective part of the project. The book discloses backstories, figures and outlines, public criticisms and private

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<sup>34</sup> Jonathan Sterne, “Format Theory” in *MP3: The Meaning of a Format*. (Durham: Duke University Press, 2012): 10.

<sup>35</sup> Carl Sagan et al. in the preface to *Murmurs of Earth*, n.p.

concerns, various communicative and technological ambitions and tensions, letters, and other details about both the curation process and the material record's selected contents. Because *Murmurs* functions as a joint narrative that seeks to recount and contextualize the material archive of the Golden Record, it will be the primary text from which I draw as I conduct this study.

Upon reading *Murmurs*, it is clear that the Voyager mission, along with its golden cargo, ushered in not only immense scientific information and engineering achievements, but also an intriguing, expansive array of rhetorical questions and cultural considerations that this study endeavors to partly address. As discussed in the previous sections, with the launch of each subsequent spacecraft,<sup>36</sup> scientists now use the opportunity to send increasingly detailed archives and messages about life on Earth to an assumed audience of alien Others in deep space—and this technical practice indicates no signs of stopping anytime soon. Like other technologies, this archival system continues to elaborate and build upon itself through time (this extension is even present now in the New Horizon digital archive happening in 2017).

At the plainest level, then, if U.S. space scientists are planning to continue sending curated memories of Earth into deep space, citizens and scholars of Earth should be asking things like: who and *what* speaks for me, for us? What are scientists doing, how are they doing it, and *why*? Already the answers to these questions begin to approach complex overlays of frontier motivations, commemoration, posthuman extensions of ourselves, and Other audiences. Addressing these concerns and questions through a rhetorical lens, in particular, will be valuable because rhetoric seeks to disclose the various, complex ways in which certain forms of argument and action (in this case, in science) re/orient bodies toward some attitude or undertaking. Thus

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<sup>36</sup> For instance, famous mission probes like Pioneers 10 and 11, Voyagers 1 and 2, and New Horizons all carry various types of memorandums from Earth to the stars. This will be addressed in Chapter III.



the following study, rooted in rhetoric of science, will be a rhetorical criticism based on the team's primary text recounting the project—the book *Murmurs*, as described above—as well as the technical memory object itself: the twin Voyager Golden Records. With that in mind, this work critically weaves through two interrelated questions orbiting around the records:

- 1.) **To what extent does the ‘frontier of science’ metaphor underpin the team’s curation processes and their notion of uncertain Other audiences in deep futures?** This question, addressed in Chapter II and again in the concluding chapter, moves toward rhetorical considerations of audience and a critical, rhetorical framing and extension of the “frontier” trope in science, as analyzed by Leah Ceccarelli. This question leads me to examine the curation process and overall product of the records (as outlined in the *Murmurs* text) through this lens because the “frontier” metaphor moves into territories of power and memory in unexpected ways. The concept of the “frontier” seems to coach a practice of curation that, in the case of the Golden Record, exposes an irreconciliation of who says what is best to remember, and for what purpose. This critical work, as delineated by Jasinski, often points to the processes of hegemony, or “the discursive construction of a dominant sense of ‘the people’ as one of the key ways in which discourse effects domination and oppression.”<sup>37</sup> The six selected curators of the record—as members of a potentially *unwitting* hegemonic group—create an object that memorializes and invents a new, hierarchical, and ideal sense of who “the people” of Earth are by way of their selectivity. In Chapter IV, the underlying warrant, waiting just below the surface of the frontier metaphor and its implications for space exploration, will be addressed at greater length.

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<sup>37</sup> James Jasinski, *Sourcebook on Rhetoric: Key Concepts in Contemporary Rhetorical Studies*. (Thousand Oaks: SAGE, 2001), 117.

2.) **How are emergent, technological regimes of commemorative practices enacted via scientific objects? And how might these commemorative technologies “speak” for, and to, *others* in posthuman ways?** The idea of posthumanism encompasses larger, more complex theoretical frameworks in rhetoric (and beyond) that—in very brief terms—deprivileges human agency by also focusing on, and acknowledging agency of, non/inhuman objects, affects, and energies. The theory, and those that invoke it, critiques the predominantly anthropocentric perspectives by intentionally, and critically, tracing the powers of non-human processes and materials in order to begin understanding how they interact and operate within, through, and alongside the human. Thus, when a technological archive like the Golden Record is overtly designed to communicate commemorative artifacts to an ‘Other’ audience, as well as to those here on Earth more indirectly, I argue that it is critical to look at both the relevant texts, as well as the affordance of the actual medium. The material medium itself is important to consider because, as I discuss further in Chapter III, Stiegler argues that human lives and endeavors are not singularly our own; we are already bound up in our outward-reaching technologies, to our prosthetics—and this includes our technically-mediated memories. That is to say, I would not want to analyze the mechanics of eating food without addressing the importance of both teeth and tongue. Likewise, I do not want to analyze the rhetoricity of technologically-mediated extensions of memory without addressing the importance of both the methods of curation, via the text, as well as the product of that curation: the object itself. Therefore, this second question frames a rhetorical, posthuman project set to analyze the medium of the record itself as it renders the materialization of memory through a scientific object. Moreover, upon taking up Stiegler’s idea that

“humans are prosthetic beings,”<sup>38</sup> this commemorative technology, as it expands into space via the Voyager probes, could arguably be seen as a technical extension of humanity—indeed, an extension of ourselves, of our voices, our memories. If so, it is important to listen critically to the archive, to the rhetorical ways in which such a grand prosthetic *seeks to speak on our behalf*. In so doing, the rhetorical criticism will be conducted through a critical lens in order to demystify the discourses of power present in the material authority of the Golden Record itself. The puzzle is not only who speaks for us, but *what*—and how.

Overall, as briefly discussed in an earlier section, the exigence to send artifacts of humankind into space—be they digital or analog—is not situated as a one-time whim.<sup>39</sup> These gilded, technological memory objects, which gesture to an evolving materialization of memory and archive, take on a life of their own as they mediate discourse in and among scientists, non-scientists, and future Others. The manner and the matter of the records, which includes the curation processes that made them possible, should not be taken as a neutral value; instead, they would benefit from closer analysis, even after forty years.

Therefore, in an effort to add to the scholarship of rhetoric, as well as to the rhetoric of science as a growing subdiscipline, one of my primary reasons for engaging in this work was instigated by Charles Alan Taylor’s argument that scholars should widen the scope of what is even considered rhetoric of science by moving “beyond the traditional exemplary texts of science” (e.g., Darwin’s *Origins of the Species* or *A Brief History of Time* by Stephen Hawking) and, in so doing, “we can come to grips with science as a complex network of cultural practices

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<sup>38</sup> Ibid.

<sup>39</sup> In Chapter III I list several examples of other commemorative artifacts and technologies sent into space.

rather than simply laboratory practices and the claims issued from them.”<sup>40</sup> Moving beyond the traditional texts of science, a critical rhetorical study of the Golden Record will help inform the ways in which the elite (even if unwitting or well-intentioned) ethos of the space science community rhetorically constructs, and increasingly participates in, technological extensions of ourselves, thus creating new cultural practices of memory as guided by rhetorics of the frontier. By focusing on the technological medium, as well, we may begin thinking about space exploration and colonization as a posthuman practice that can be proclaimed beyond—or supplemental to—a typified human body.

## Methods

My method for this study—rhetorical criticism—is buttressed by rhetoric of science, a branch of inquiry that does not see scientific work or texts as a neutral, transparent means of communicating knowledge (as it has been, and still is, often construed), but instead approaches these things as exhibiting various rhetorical structures and strategies. Therefore, the goal of the rhetoric of science (one of them, at least) is the rhetorical reconstruction of the means by which scientists convince themselves and others that their knowledge claims and assertions are an integral part of *privileged* activity of the community of thinkers with which they are allied.<sup>41</sup> This will be kept in mind throughout the course of my study.

In the following subsections I delineate prominent limitations of the study as well as appropriate alternatives for conducting analysis. Afterward I provide a brief overview of how rhetorical

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<sup>40</sup> Charles Alan Taylor, “Science as Cultural Practice: A Rhetorical Perspective” in *Technical Communication Quarterly* 3 (1994), 69.

<sup>41</sup> Alan Gross, “The Origin of Species: Evolutionary Taxonomy as an Example of the Rhetoric of Science” in *The Rhetorical Turn: Invention and Persuasion in the Conduct of Inquiry*. (Ed. Herbert W. Simons. Chicago: The University of Chicago Press, 1990), 91.

criticism guides this work, followed by an outline of chapter summaries that comprise the entirety of this study.

### **Limitations and Alternatives**

In doing this work, I use rhetorical criticism through close reading of a text, *Murmurs*, as my guiding method for the study of the Voyager Golden Records. Before going further however, I should briefly add that, given that my objects of study are approximately twenty trillion kilometers away from Earth at the time of this writing (and counting), they are unavailable for a more hands-on approach. Much to my surprise, this cosmic archive has not always been readily accessible to the public for hands-on work. Since the record's construction and launch almost forty years ago, members of the public have only recently been able to access its contents via media like CD-ROMs, books, Discovery Channel episodes, and now a website that serves as an interactive, multimodal archive of the record. Otherwise, Earth-bound resources have been relatively sparse. In mid-2016 a start-up company called Ozma Records began a Kickstarter campaign to recreate and mass-produce a replica of the golden phonograph record—a near perfect model of the artifacts hitchhiking on the sides of spacecraft Voyager 1 and 2. Their Kickstarter page, where supporters can donate money to their cause, sells the project as follows: “For the first time in history, to celebrate Voyager's 40th anniversary next year [2017], you'll be able to experience it for yourself the way it was meant to be played.”<sup>42</sup> Unfortunately, their enterprise still has yet to come to fruition in time for this study, so I cannot sensibly experience it as it was meant to be played. For now, I will have to rely on other means.

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<sup>42</sup> Read more on Ozma Record's project at <https://www.kickstarter.com/projects/ozmarecords/voyager-golden-record-40th-anniversary-edition>

In order to rhetorically analyze how the Golden Records advance a magnificent technological extension of archived memory into the ‘frontier’ of space, I will rely on *Murmurs* as my primary site of analysis. This text, written by the record’s six curators themselves, provides first-person insight and narratives that articulate their individual and collective motives, tensions, and curation processes in greater detail. As a rhetorical critic I conduct a close reading of *Murmurs* to trace and identify

- explicit and implicit appeals to the frontier metaphor—and what attitudes that metaphor produces toward audience—during the record’s curation process
- how the team members gesture toward the idea that this scientific technology, as a memory object, represents, remembers, and *speaks* for humanity in significant, material, and posthuman ways

I kept in mind that there are undoubtedly going to be details missing or half-acknowledged in their book. Therefore, in addition to using the primary text, I will refer to a few secondary resources as needed to enrich the information or fill in any gaps found in *Murmurs*. For this, I turn to chapters within books like *Voyager’s Grand Tour* and *Interstellar Age*, as they both provide descriptive accounts of the Voyager Golden Record project. I will also draw from U.S. presidential speeches that contextualize the various social and historical exigencies of space exploration and notions of ‘the frontier,’ as well as important mission data and technical context from NASA’s website. Lastly, with the help of the interactive website [www.goldenrecord.org](http://www.goldenrecord.org), which contains the contents of the record in its entirety, I will be able to analyze the curated elements of the archive on my computer. To do this work, I will use rhetorical criticism as my guiding framework, which will be supplemented by critical perspectives on rhetoric of science and Leah Ceccarelli’s analysis of the frontier metaphor.

Rhetorical criticism, as outlined by Campbell and Burkholder, asks the critic to be aware of the importance of locating and exploring “conflicting forces and tensions inherent in most persuasive situations,”<sup>43</sup> as those are often the core of rhetorical processes. Furthermore, in rhetorical criticism it is made clear that basic conflict almost always involves perception of, and disputes over, values. Rhetorical criticism will thus help me describe, analyze, interpret, and evaluate<sup>44</sup> key arguments and actions made apparent in the curation process (e.g., team members debated what the motive for the archive was, what should be included, who gets represented), as indicated by the *Murmurs* text. This work will be apparent in Chapter I, which I outline near the end. Additionally, the rhetorical criticism performed throughout the thesis will attempt to demystify the discourses of power present in the technological curation of the Golden Record. Such work, as delineated by Jasinski, often points to the processes of hegemony, or “the discursive construction of a dominant sense of ‘the people’ as one of the key ways in which discourse effects domination and oppression.”<sup>45</sup> The six elite creators of the record, as members of a potentially *unwitting* hegemonic group, commemorate a new, ideal sense of who “the people” of Earth are by way of their selectivity: for instance, “the people” are remembered as non-violent, non-aesthetic, non-diseased, areligious, apolitical, etcetera. They avoid the darker, more frank depictions of life on Earth in order to preserve a brighter, peaceful side of humanity. This is worthy of critique, as it inadvertently undermines the reality of human experience in order to uphold and memorialize ideals and reflections of a select few.

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<sup>43</sup> Karlyn Campbell and Thomas R. Burkholder, *Critiques of Contemporary Rhetoric*. 2nd ed. (Belmont: Wadsworth Publishing, 1997), 12.

<sup>44</sup> *Ibid.*, 15

<sup>45</sup> James Jasinski, *Sourcebook on Rhetoric: Key Concepts in Contemporary Rhetorical Studies*, (Thousand Oaks: SAGE, 2001), 117.

## Chapter Previews

The subsequent chapters of this thesis are underpinned by the team's commentary as chronicled in *Murmurs*. I use this primary text, as bolstered by overlapping scholarship on rhetoric, memory, frontier, posthumanism, and technology, in order to rhetorically trace the who, the how, the what, and the why of the Golden Record's technoscientific curation and its critical, posthuman implications as it echoes and murmurs through space and time.

In Chapter II, I draw on the work of Ceccarelli to analyze how the framework of “the frontier of science” metaphor influences the momentum, and the curation process, of the Voyager Golden Records. Based on excerpts from *Murmurs*, I contend that the frontier of science shaped (and continues to shape) the technological actions and colonial attitudes of both science and the Western public imagination, especially as it guided the efforts of commemorating humanity's most noble traits for an audience of alien Others. I use historical context from presidential speeches and texts, alongside textual evidence from *Murmurs*, to illuminate the rhetorical complexities that stem from the team's archival decision-making; such evidence seeks to demonstrate how the rhetorical proliferation of the frontier trope critically influenced key aspects of the project, including who/what is worthy of remembrance, for whom, and how. Indeed, to more critically understand what is “selected and deflected” by the archive, I analyze what the NASA team turns to—and what they turn *away* from—as they collect sensory memories of Earth. In so doing, the overarching critique shifts to the team's curious choice to avoid darker topics of humanity by only archiving “the best of ourselves,” thereby actively denying the bleaker, candid concerns and experiences of existence on Earth. As a critical scholar I begin to draw connections about how such selectivity further contributes to violence of those who experienced it. Furthermore, I draw from critical scholars to show how this deeply ingrained



metaphor mobilizes and shapes the rhetorical exigence surrounding the record's technological endeavors, concerns with audience, and its overall representation of the "best" of Earth. With this idea of collectivity in mind, I investigate how the frontier framework is woven into the curation team's implicit theorization of 'the people' of Earth—as problematized by Michael McGee—as well as assumptions of an alien Other. From there, I show how science fiction plays a surprisingly critical role in subtly informing and influencing the attitude of the curation team as they direct their colonial ideals to unknown beings in unknowable futures. This work proves to be particularly critical because the machine-led, memory-laden exploration on the 'final frontier' of space is no longer fictional, and its practice shows no signs of slowing down any time soon. And, more notably, as I move into the third chapter, I emphasize how these technical processes of space colonial work is not being driven *solely* by humans. Instead it is, as I explain, a complex assemblage comprised of humans and technologies, metal and machine, that speak on behalf of us all.

In Chapter III, once the framework of the frontier trope has been established, I continue a close reading of *Murmurs* in order to more critically determine how this cosmic artifact, as a material exemplar of the frontier ethic in Western science, rhetorically constructs and participates in technological extensions of "us" via collective memory and notions of posthuman discourse. First I clarify how the Golden Record is a considerable example of a technical apparatus of cultural memory framed by the frontier trope, especially as it takes up a long lineage of memory work via the archive. After an overview of memory and technology in regard to this study, I move toward the notion that the records themselves are technological, commemorative archives designed to communicate, commemorate, and extend life on Earth to an 'Other' audience (as well as to those here on Earth more indirectly). Consequently, I focus on analyzing

the actual medium, particularly because it is important to acknowledge not only *who* remembers through science and technology—but *what* does the remembering, and how. Based on the *Murmurs* commentary, I argue that these records speak in posthuman, technological ways via Voice without Organs—as motivated by the frontier metaphor—and, in so doing, they advance a nascent, previously unacknowledged form of space discourse and emerging colonialism that deserves closer rhetorical examination. As a technological prosthetic of us, the Voyager records keep us alive. Thus we are now able to colonize the ‘frontiers’ of space but, instead of venturing out to lay claim to territories of space via human bodies, scientists (as pioneers on the as-yet-untouchable frontier) are now launching extensions of *ourselves* in the technological form of our murmurs, our memories, our past into futurity. The engineered rovers, the landers, the satellites and space probes all go before us, pioneers in the dark, enabling us to survive as they speak for us, posthuman emissaries in deep space and deeper futures.

In Chapter IV, I conclude the study by addressing the various critical turns and revelations encountered throughout the course of my thesis. For this final chapter I first discuss how the underlying attitude advanced by the trope of the frontier seems to have evolved over time; historically, it enabled a domineering, arrogant attitude in Western science, whereas in contemporary science, scientists see the frontier as a final hope for human salvation. In so doing, scientists unwittingly (or not) begin to look *beyond the human* (i.e., prosthetic technologies, alien others) when the end of the human seems imminent. That is to say, rather than undertaking a more typified, overconfident colonialism as we expand into space, the work is taken on in a rueful, posthuman way by sending pieces of ourselves (the best of ourselves) in a hopeful effort to extend and survive tribulations of Earth. The goal is to survive, to live on via these prosthetic technologies. Thus, as I explain toward the end, this has direct implications for technological and

posthuman frameworks in rhetoric as it pertains to the collective decision to explore space via extensions of ourselves. Through our memories, our murmurs, and our technologies, the final goal is rooted in finding new ways to survive the end of the human.

## CHAPTER II

THE FRONTIER METAPHOR AND THE CURATION OF “THE BEST OF OURSELVES”  
IN THE GOLDEN RECORDS

“...on behalf of Earthlife, I urge that, with full knowledge of our limitations, we vastly increase our knowledge of the Solar System and then begin to settle other worlds. . . . If our long-term survival is at stake, we have a basic responsibility to our species to venture to other worlds. Sailors on a becalmed sea, we sense the stirring of a breeze.”

—Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*

Before investigating the posthuman dimensions of the Voyager Golden Records, particularly in regard to their technological and commemorative affordances, it would be helpful to first address the exigence that paved the way for such an archive to exist in the first place. In this chapter I trace how the impetus, and subsequent curation processes, of the Voyager Golden Records—as outlined by its project members in *Murmurs*—are situated deep within the framework of “the frontier of science” metaphor. The colonial implications of the frontier trope—indeed, a trope that I argue underpins the Golden Records—are worth examining more closely because they influence scientific processes of commemoration and technological invention in critical ways, as the following sections demonstrate. Furthermore, the idea of the frontier adeptly shaped (and continues to shape) the actions and attitudes of both science and the Western public imagination, especially when it guided the emergent efforts of commemorating humanity’s more honorable traits to an audience of alien Others. Based on an analysis of the text, *Murmurs*, I argue that the rhetorical proliferation of the frontier trope influenced key aspects of the project, including who/what is worthy of remembrance, for whom, and how. This deeply ingrained metaphor of the frontier ultimately mobilizes and shapes the rhetorical exigence

surrounding the record's technological endeavors, concerns with audience, and its overall commemorative representation of (a version of) life on Earth.

Toward that end, I also draw on McGee to analyze how the frontier framework is woven into the team's implicit theorization of 'the people' of Earth, as well as assumptions of an alien Other. The rhetorical criticism in this chapter needs to be taken up in order to more critically understand how this cosmic artifact, as a material exemplar of the frontier ethic in Western science, rhetorically constructs and participates in technological extensions of cultural memory, as curated by the scientific elite. The overall purpose of this work is not to villainize scientists and their engineering achievements in one fell swoop, but instead to suggest that their positions of privilege and power enact actions and ideals that warrant critical consideration. Their practices—and the products of their practices—cannot be overlooked, especially given that they<sup>46</sup> are in positions of remembering, communicating, and even colonizing on behalf of our entire planet.

### **On The Frontier Metaphor**

As a metaphor, "the frontier" is often used as a powerful mobilizing ideal, according to communication scholar and space policy researcher, Linda Billings. Even when geographical boundaries become set, the seemingly inexhaustible "frontier" of science research and investigation takes its place. In her work, Billings addresses the fact that "advocates [for the frontier, westward expansion] actually declared that expansion was a *natural* process. John O' Sullivan, a journalist credited with coining the term "manifest destiny," wrote in 1839 that [the U.S.] was 'destined to be the great nation of futurity... We are all the action of human progress

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<sup>46</sup> My use of "they" here refers to the scientists for now, but as I explore in Chapter IV, it could include a wider network of media and technologies, too.

and who will, what can, set limits to our onward march?”<sup>47</sup> She goes on to critique that this colonizing rhetoric is “old and tired, even threatening,” nevertheless “it persists among space advocates, supported by a prevailing belief among Americans that the USA remains 'number one' among all the nations of the world.”<sup>48</sup> Her article analyzes how, given this attitude perpetuated by the trope, space exploration continues to be described as “pioneering the frontier, conquering the unknown, exploiting space resources”<sup>49</sup> —and the problematics that arise from this.<sup>50</sup> In fact, much of what Billings addresses is later discussed at length in Ceccarelli’s book on the frontier of science metaphor, wherein she examines how the American public is taught that science *deserves* to flourish and expand since “it is part of our democratic creed to affirm the intrinsic cultural and aesthetic worth of man’s attempt to advance the frontiers of knowledge and understanding”<sup>51</sup>. . . . The implication is that Americans, known for their frontier spirit, would be shamed if they were to fall behind on the international race to occupy new territory on the frontiers of science.”<sup>52</sup> This Western identification with the frontier spirit demonstrates the metaphor’s command over the imagination of both the public and of scientists, which leads her to further rhetorically consider “what is selected and deflected by the frontier of science metaphor.”<sup>53</sup> In so doing, Ceccarelli gestures to the frontier metaphor in relation to Kenneth Burke’s idea of a terministic screen, a language system which has its own way of directing our

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<sup>47</sup> John O’ Sullivan, as quoted by Linda Billings in “Frontier Days in Space: Are They Over?” in *Space Policy* 13, no. 3 (1997), 188.

<sup>48</sup> *Ibid.*

<sup>49</sup> *Ibid.*

<sup>50</sup> This idea of the frontier trope being ‘old and tired’ speaks to a particular turn in attitudes about the frontier, and thus will be an issue I address at length in the concluding chapter.

<sup>51</sup> Leah Ceccarelli, *On the Frontier of Science: An American Rhetoric of Exploration and Exploitation*. (East Lansing: Michigan State University Press, 2013), 47.

<sup>52</sup> *Ibid.*

<sup>53</sup> *Ibid.*, 141

attention and shaping our thinking and attitudes (as the following sections will show, this sense of terministic selectivity aligns itself aptly alongside the curation processes of the NASA team).

By drawing from Burke, Ceccarelli undergoes a historical and rhetorical investigation into the Westernized metaphor by tracing the critical framing of the who, what, how, and where of science frontiers: “ruggedly individualistic men” become the prevailing archetype; “progressive” is the motive that guides them; competition and exploitation are the means to achieve goals; “unclaimed territory” is the setting in which they operate.”<sup>54</sup> The ideological power behind the metaphor leads Ceccarelli to turn to concerns of audience, invoking rhetorical critic Tarla Rei Peterson, who argued that the goals legitimized by the frontier metaphor “are not always congruent with the goals of those ensnared in its web.”<sup>55</sup> In alignment with Peterson, Ceccarelli goes on to explain how

When a commonplace so familiar that it is used without reflection encounters unintended audiences, or purposes that conflict with its connotations, or ambiguities of public memory, the resulting rhetorical product can be strange, illogical, and counterproductive. Identifying these incongruities can help us to better understand individual texts and their influence, and perhaps help scientists begin to loosen the grip of this ubiquitous metaphor over their rhetorical imagination.<sup>56</sup>

Rather than be considered as a commonplace, innocuous trope meant to pronounce the boundaries of a site of exploration, its linguistic effects become manifested *materially* in the world, often with colonizing effects as it weighs heavy on audience, intent, and memory—and thus deserve critical rhetorical oversight. Indeed, although Ceccarelli’s work primarily focuses on the use of the frontier metaphor operating within texts and speech acts, I hope to take it one step further by studying the Golden Records as technological extensions of the frontier trope as a material artifact (as will be discussed at length in Chapter III). With that in mind, I want to

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<sup>54</sup> Leah Ceccarelli, *On the Frontier of Science*, 4.

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*, 5

briefly restate my effort to contribute to the rhetoric of science by moving “beyond the traditional exemplary texts of science” and, in so doing, “come to grips with science as a complex network of cultural practices rather than simply laboratory practices and the claims issued from them.”<sup>57</sup> I argue that the practices of space exploration and commemoration, as shaped by ‘the frontier’ metaphor, are not only rendered in textual or spoken form—they are indisputably material, as well. The material matters because, as Sterne reminds us, the power of a medium lies not simply in its hardware, but “in its *articulation with particular practices, ways of doing things*, institutions, and even in some cases belief systems [emphasis added].”<sup>58</sup> Memory as material technology, especially in the case of the records, has power to remember for us and, in so doing, it certainly has the capacity to *forget* as well. In the following sections I will examine how scientists archive certain memories while denying others—and what is at stake as a result of such practice.

Overall, the frontier, as a guiding ideal, clearly frame the attitudes of space scientists at NASA in the twenty-first century. In her book Ceccarelli analyzes how, long before NASA scientists were creating gilded archives to launch into the vacuum of space, the earliest historical use of the metaphor in American society actually “established science as a national salvation at a time of anxiety about the future,”<sup>59</sup> particularly when resources and opportunities for geographic and economic expansion were depleted or limited in an ever-shrinking, already-conquered world. The metaphor gained traction in the minds of Americans during the Great Depression, an era in which the public was incredibly concerned about their future prospects and overall survival. In doing so, the metaphor—as invoked by Roosevelt and his administration—ushered in an

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<sup>57</sup> Charles Alan Taylor, “Science as Cultural Practice: A Rhetorical Perspective” in *Technical Communication Quarterly* 3 (1994), 69.

<sup>58</sup> Jonathan Sterne, “Format Theory” in *MP3: The Meaning of a Format*. (Durham: Duke University Press, 2012): 10.

<sup>59</sup> Leah Ceccarelli, *On the Frontier of Science*, 141



emerging, confident sense of “endless opportunity for national development”<sup>60</sup> by framing *scientists* in particular as the innovative, brave frontiersman of the West.<sup>61</sup> This time, rather than venturing across prairieland in pursuit of expanding new geographical territories, the scientific ‘pioneers’ were to venture into the pursuit of knowledge, invention, and discovery for the benefit of the public. Scientists would be deliberately construed to the public as an elite, intrepid group of people (typically men) who would act with heroism and fortitude, despite the loneliness of their grand endeavors as “rugged individualists”<sup>62</sup> on a mission to tame the unknown and expand human knowledge. Even today, seventeen years into the twenty-first century, we see a major push for young students<sup>63</sup> across the country to pursue STEM (Science, Technology, Engineering, and Math) vocations in college and in industries beyond; I suspect that this push is due, at least in part, to the enduring rhetoric surrounding frontier archetypes of the scientist and their profitable economic value. Indeed, Ceccarelli writes frankly about how “scientists, as framed through the frontiersman metaphor, have an impulse to penetrate into the unknown and a temperament that is bold, aggressive, and competitive... in short, they are archetypes of hegemonic masculinity.”<sup>64</sup>

Here I want to note that although this study is not being advanced as an explicit criticism of the hegemonic masculinity present within the Voyager mission (another project for another time), I argue that it is susceptible to hegemonic masculinity, just like most commonplace archives and commemorative sites. The topic absolutely deserves its own separate study. Still,

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<sup>60</sup> Ibid.

<sup>61</sup> From this framework, the idea is that the scientists are the savior-like figures of the frontier. However, in the concluding chapter I note how this attitude is changing as we continue into the twenty-first century.

<sup>62</sup> Ibid.

<sup>63</sup> Typically, these students are men, but there have been recent public attempts to increase the number of women joining the STEM disciplines as well. Nevertheless, the fact that there is an emerging effort to advocate for women in STEM certainly speak volumes about the continual problem of their absence.

<sup>64</sup> Leah Ceccarelli, *On the Frontier of Science*, 141.

alongside my critical rhetoric approach, I still keep in mind the hegemonic masculinity present in the curation process and contents of the Golden Record—from the NASA rule that the sound of a kiss must be heterosexual,<sup>65</sup> to concerns of nudity in the archived images, to the overall assumptions made about what gets remembered, and what gets left out (or, as Ceccarelli puts it, what is selected and deflected) as a result of the metaphor’s endeavor to expand into knowledge territories. By looking at what is deflected, selected, ignored or assumed, “we learn more about the implications that follow it.”<sup>66</sup>

Certainly one of the implications is that scientists are trusted with doing the work of representing and expanding society's sense of economic and ecological security and safekeeping when other, more commonplace frontiers when resources have been depleted. As a result, the ethos of the scientist is often one that is trusted and revered, particularly because they are framed as forerunners on the frontier (i.e., pioneers on the frontier of knowledge, of medicine, of technological innovation, of space exploration, of robotics, etc.). When thinking through the frontier metaphor with a critical rhetorical lens, Ceccarelli warns that “there is a hierarchy implied by the metaphor, with scientists taking the superior position because they boldly strike out into the unknown, and in so doing, tame the wilderness for the benefit of the townsfolk, who can then profit from the new discoveries that were made out there.”<sup>67</sup> The public does benefit from the work of scientists: in the world of higher education, for instance, work is often taken up by complex technologies with which we mediate our communicative undertakings (cellphones, laptops, cloud servers, email). Although these things are used by a vast population of people, particularly in the Western world, it is safe to say that the average citizen would not be able to fully articulate how a cell phone works, much less recreate it. This is because the creation of a

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<sup>65</sup> Ibid., 34

<sup>66</sup> Ibid., 140

<sup>67</sup> Leah Ceccarelli, *On the Frontier of Science*, 152.

scientific, technological object often rests in the hands of a network of elite scientists and engineers who are trusted to bring things into being *for* us. The inventive, pioneering ethos of the scientist often goes unquestioned.<sup>68</sup>

With this ethos, the metaphor “encourages themes of competitiveness and economic exploitation even when used by rhetors sensitive to the dangers of such themes.”<sup>69</sup> One rhetor who may not have been sensitive to the dangers of this trope, despite his critical work, was Edwin Black, rhetorical scholar and author of the seminal text *Rhetorical Criticism: A Study in Method*. Upon beginning his book—which, notably, was penned in the 1960’s and thus reflects a common attitude held about scientists at the time—the reader is immediately greeted by declarations about scientists and the supremacy of their methods. From the outset in the first chapter, Black writes

The scientist is one of the cultural heroes of our age. He is consulted by senators, courted by corporations, and exalted by the popular mind. It is no wonder that we respect the office of scientist, for one mystery after another has yielded to the formidable machinery of scientific method. [...] Having, as it sometimes seems, the key to the universe in its very techniques of investigation, science is on a progress of discovery that has no conceivable limit, unless it is the mushroom cloud on the horizon. The triumphs of science seem as inexorable as the tide.<sup>70</sup>

Thus begins his first chapter, which initially seeks to frame how methods of criticism and the scientific method (the standard to which all other methods seem to compete) relate and differ in various ways. It is striking how, according to Black, scientists and the “formidable machinery” of the scientific method are unhesitatingly distinguished as triumphant champions of our time: scientists, our cultural heroes, embark upon “a progress of discovery that has no conceivable

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<sup>68</sup> To be fair, it is worth noting here that recently some scientists and their findings have been publicly questioned or rejected (e.g., child vaccination safety, climate change validity) usually due to aspects of government mistrust alongside concerns about who funds the studies and whether the results are skewed as a means to some political end.

<sup>69</sup> Leah Ceccarelli, *On the Frontier of Science*, 139.

<sup>70</sup> Edwin Black, “Meaning of Criticism” in *Rhetorical Criticism: A Study in Method*. (Madison: University of Wisconsin Press, 1965), 1.

limit,” a phrasing that speaks to their societal value as pioneers venturing into the unknown and *conquering* it, using methods that have earned an almost godlike status in the public imagination during his time. Therefore, even with his foundational insights concerning critical methods, I speculate that Black did not see how his approach further ratified the mythos of the scientist because the trope of the ‘frontier of science’ was (and still is) all-consuming and, until recently, undisputed.

Black praises their techniques of investigation via the scientific method, but I would be curious to know what he would make of these cultural heroes and their emerging methods of cultural *curation*. What about their methods of archiving and representing select aspects of humanity as they expand into the frontier of space—is such a techno-scientific archive, too, a ‘progress of discovery that has no conceivable limit’? In *Memory Practices in the Sciences*, Geoffrey Bowker argues that “we should not think of the archive as an organized set of data to which we desire random access” as such a perspective overemphasizes “the noun, the site.”<sup>71</sup> Instead, Bowker suggests it should be framed as the act of remembering, which is “one of our chief ways of being in the world . . . it is a way of framing the present: a mode of acting. We exclude, sketch, form, design memory traces of all kinds; these work together in complex ecologies.”<sup>72</sup> When the NASA team are chosen to curate and technically mediate the memories and ‘murmurs’ of Earth, they certainly exclude, sketch, form, and design memory traces carried into frontiers of deep space—and in the public imagination back on Earth. This act of curation gestures to the idea that the Golden Record, aside from its perfunctory vehicle as a spacecraft archive, is also a complex, technical mode of memory, a deep-space monument to humanity and life on Earth.

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<sup>71</sup> Geoffrey Bowker, *Memory Practices in the Sciences*. (Cambridge: MIT Press, 2008), 25.

<sup>72</sup> *Ibid.*, 26

NASA is the Western, government-funded forerunner of making this happen, and they are no doubt compelled by archiving their endeavors on the frontier. For instance, in 2006, NASA removed any mention of Earth from its mission statement for the first time. They removed “to understand and protect the home planet” and replaced it with “to pioneer the future in space exploration, scientific discovery and aeronautics research.”<sup>73</sup> As of this writing, the current mission statement for NASA now reads: “We reach for new heights and reveal the unknown for the benefit of humankind.”<sup>74</sup> Either way, the overall point is clear: ‘home’ is behind the frontier ahead. They assure us: We pioneer the future, we reveal the unknown to benefit the rest of you, we reach the unreachable. In recent history, science has done the work of representing and expanding Western society’s sense of economic and ecological security and safekeeping (arguably, non-traditional frontiers to conquer) when other, more commonplace frontiers have been dwindling or depleted. This frontier ethic is alive and well in space science thanks, in part, to the Voyager mission and the curation of its now-interstellar Golden Records.

### **Frontier Attitudes and the Curation of the Records**

Our planet is approaching maximum capacity. Where to next? Onward, into the skies above, or to what the narrator of the opening sequence in sci-fi show *Star Trek* refers to as the “final frontier.” We live in a time wherein the ‘pioneers,’ ‘voyagers’ ‘pathfinders’ and ‘mariners’ of our era are named not for human explorers on ships or horseback, but for space flight machinery that launch from the surface of Earth in billowing clouds of chemical fire, leaving behind the gravitational confines of our planet in order to carry out missions to the stars. Interestingly, it would seem that as scientists set out to explore this new ‘frontier’ of space—via extensions of

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<sup>73</sup> Accessed the 2006 NASA Strategic Plan online, on page 3.

<sup>74</sup> See more at the “About NASA” webpage: <https://www.nasa.gov/about/index.html>

ourselves—they no longer function *only* as heroic economic and ecological safekeepers, as mentioned above. Rather, they are approaching a realm of curation and technological commemoration that complicates the already-established sense of safekeeping and cultural heroism. The Golden Records are particularly unique to the emergence of the scientific safekeeping endeavor because they demonstrate an attempt to communicate and archive what one of its curators called the “best of ourselves” for future alien audiences. The Golden Record phonographs themselves are, to varying degrees, material, memorial artifacts of the ‘frontier’ metaphor. Indeed, at the start of the NASA project, collaborator B. M. Oliver noted that the “real function [of the Golden Records] ... is to appeal to and expand the human spirit, and to make contact with extraterrestrial intelligence, a welcome expectation of mankind.”<sup>75</sup> Already there is rhetorical work being done in the most classic sense, as indicated by Oliver’s admission that the Records are meant *to appeal to* the human spirit; these motivating actions strongly suggest a frontier ethic that framed and guided the overall creation of the interstellar archive: *to appeal...expand...make contact... expectation*. Clearly the archival project in question seeks to move Earth audiences—and Other audiences—but how?

Here I turn to the team’s collective account in *Murmurs* to examine the rhetorical complications that stem from the team’s archival decision-making. To more critically understand what is “selected and deflected” in the archive, I will analyze what the team turns to—and what they turn away from—as they collect sensory memories of Earth. This concern of selection and deflection is directly adapted from Ceccarelli’s rhetorical work on the implications of the frontier metaphor, as well as interests framed within critical rhetoric. In *Murmurs*, the reader learns that there were six privileged members of the team who were chosen to curate and send a sensory

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<sup>75</sup> B. M. Oliver as cited by Carl Sagan et al., in *Murmurs of Earth*, 11.

archive about Earth into space (two were women, four were men). As a group they were comprised of various sorts of scientists (cosmologists, professors, engineers, space policy writers) or otherwise civic, public figures who were—and would be still—considered intellectuals. Interestingly, as Ekaterina Haskins notes in her study of tensions and overlaps between official and vernacular memorial endeavors

...artifacts and texts selected for preservation and veneration were typically products of intellectual and artistic elites rather than illiterate artisans and performers. This preference, furthermore, contributed to the loss of contexts in which artifacts and texts were produced in order to subordinate them to legitimizing narratives of historical progress and national identity.

A similar assertion can be made about the records, which were constructed by an elite NASA committee that sought to archive artifacts of images and sound that gestured to “the best of ourselves,” as I will explain below, rather than a more candid collection that included ‘murmurs’ of more honest, inclusive perspectives and experiences. That’s not to say that the team intentionally purposefully aspired to diminish the diversity and complexity of life on Earth. Throughout *Murmurs*, various team members address efforts to avoid flaunting a sense of privilege or enacting any implications of Western bigotry (at least in the more recognizable ways) on the record. In the first chapter, for instance, Sagan recalls the question they faced regarding audio storage: “How could we send something representative of the music of the planet Earth with its full range of emotion, tone, and cultural diversity in twenty-seven minutes?”<sup>76</sup> This difficulty of archiving “the full range” of things—whether sounds, images, music, or greetings—echoes throughout the book. With these concerns in mind, he emphasized how they each “wished to avoid a Western European musical ghetto on the record, and purposely juxtaposed music from many cultures.”<sup>77</sup> This resulted in the team enlisting ethnomusicologic

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<sup>76</sup> Carl Sagan et al., *Murmurs of Earth*, 15.

<sup>77</sup> *Ibid.*, 20

expertise of several people at the time, like Robert E. Brown, the executive director for the Center for World Music in Berkeley as well as Alan Lomax, director of Cantometrics Project at Columbia University in New York, in order to maintain a more solid sense of cultural, musical representation. Lomax in particular was “a persistent and vigorous advocate for including ethnic music at the expense of Western classical music, and the pieces he brought...were so compelling”<sup>78</sup> that everyone on the selection committee was ultimately persuaded by his insight. Then, when it came time to record spoken greetings from the people of Earth, Sagan was mindful of the fact that “a hello in English, or in any other single language, seemed chauvinistic.”<sup>79</sup> A greeting in one language would seem domineering and bigoted, thus they endeavored to include greetings in many languages.

There were other instances of cultural inclusion discussed in *Murmurs of Earth* that depicted the team’s thoughtful consideration of Earth’s larger population beyond the West. I am inclined to argue, however, that at some point these inclusive endeavors do not merit further praise or attention primarily because a sense of plurality is *to be expected* when curating a record that intends to commemorate all the complexity of life on Earth. Had it been an archive focused on sights, sounds, and experiences unique to the United States, maybe they would have written a book called *Murmurs of the U.S.* In short, what they put in is not nearly as telling as what they leave out. Thus, I want to more closely look at what was rejected and *deflected* during the curation of the record, as influenced by the swift rhetorical undercurrents of ‘the frontier’ and what’s at stake for the planet and its inhabitants.

In the interest of showcasing the team’s discerning approach overall, it should be noted here that I look *across* the text of *Murmurs* to identify common threads of power and selectivity

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<sup>78</sup> Ibid., 16

<sup>79</sup> Ibid., 23



based within commentary about their curation decisions. Therefore, these threads are not tied to one single facet of creating the record (i.e., image, music, sound, or greeting selection), but instead they weave across their process of archiving as a whole. My decision to look *across*, as well as *into*, the text was inspired by a line written toward the end of *Murmurs* first chapter titled “For Future Times and Beings,” wherein Sagan reflected upon the importance of their work: “Perhaps the Voyagers would never be recovered by some extraterrestrial society. But making the record had provided us with a unique opportunity to view our planet, our species, and our civilization as a whole, and to imagine the moment of contact with some other planet, species, and civilization.”<sup>80</sup> I argue that this apparent opportunity to view life on Earth ‘*as a whole*’ was immensely undermined and destabilized by the latter part of his assertion: ‘to imagine the moment of contact’ with others. The rhetorical pull of the frontier trope seems to draw the NASA team away from genuinely seeing life on Earth ‘as a whole’ and, instead, invites them to view life on Earth as an idealized *part*. It is this dangerous enactment of a macrocosm, a synecdoche in which a smaller, ideal parts are somehow assumed to be able to represent a larger whole, that drives the project. This attitude guided the work down a more terministic path inspired by the allure of expansion ‘to the point of contact,’ to the point of making the best, more superior aspects of ourselves possibly *known* to the unknown. The frontier shaped the way in which the team selected and deflected elements for the record, and not all of it was for the better. They omitted a large amount of accuracy about life on Earth in order to maintain a romanticized sense of life on Earth for ‘the people.’

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<sup>80</sup> Carl Sagan et al., *Murmurs of Earth*, 41.

## Only The Best

The overarching critique shifts toward the team’s decision to avoid contentious topics, thereby undercutting the darker<sup>81</sup> concerns and experiences of existence on Earth. This is a key concern because, as McKerrow pointed out, “absence is as important as presence”<sup>82</sup> in understanding and evaluating rhetorical action. The team’s strategic omissions made during the curation process prove to be, as I argue, rhetorically harmful to entire populations and experiences of life on Earth. The most prominent instance of their collective circumvention took place in the fifth chapter of *Murmurs*, titled “The Sounds of Earth” by collaborator Ann Druyan. The epigraph for her chapter is a short stanza from *The Tempest*, which reads: “Be not afeard. / The isle is full of noises, / Sounds and sweet airs, that give delight, / and hurt not.”<sup>83</sup> (The Shakespearian epigraph seems to foreshadow their overall inclination toward aural ‘delights’ of Earth—but the last line ‘and hurt not’ proves to be, from a critical perspective, somewhat ironic in its situation.)

In the beginning of Chapter 5, Ann Druyan writes about the day she and fellow Golden Record curator, Timothy Ferris, visited the National Geographic Society and the Library of Congress’ Archive of Recorded Sound in order to begin collecting audio recordings to use for the records. It was during their visit at the archives at the Library of Congress where Druyan recalls hearing the disturbing, historic recordings of violence:

Somewhere in among the wolves and the brine shrimp was a heavy lacquer disc of what is believed to be the first field recording ever made during battle: an ugly repeating loop of a World War I skirmish in France with an American soldier urging a mustard-gas grenade launcher to fire. The soldier’s voice seems horribly cheerful and thoughtless, as mechanical a sound as the answering hiccup of the poison canister. It drones at us from across sixty years, and Tim and I try to see what this man must have been seeing. [. . .] We try to stop hearing it

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<sup>81</sup> In this work I use the term ‘dark’ to describe A.) the mysteries of space, and B.) to outline how the curation team kept many realities of humanity in the dark by only bringing to light the more positive frameworks of life on Earth.

<sup>82</sup> Raymie E. Mckerrow, “Critical Rhetoric: Theory and Praxis” in *Communication Monographs* 56, 2 (1989), 121.

<sup>83</sup> From Shakespeare’s *The Tempest*; used as an epigraph for “The Sounds of Earth” chapter in *Murmurs of Earth*, 149.

all day long. It's so tainting that we both hesitate before mentioning it to the others at dinner. This leads us into a discussion of just exactly how realistic a picture of life on Earth we wished to convey. Was the Voyager message to be a historical gesture or merely a social one? Murry [Sidlin, professor and collaborator] was adamant that we should send only the best of ourselves. And while none of us was absolutely convinced that the record would be incomplete without so vivid a demonstration of our imperfection as our violence, there was a feeling that being truthful was important in ways that might be momentarily obscured by culture. Most of the cherished beliefs of the previous decade turned flimsy in this one. And even now the prejudices of this particular moment lose their currency and change into something else. When we contemplated Voyager's inconceivable future, composed of maybe a million times ten years or sixty years, we despaired at knowing what the citizens of that age would understand or prize. If we showed ourselves as we really are, a species involved with struggle, wouldn't we at least be assured of the record's value as an accurate document? We failed to come to any conclusion that evening.<sup>84</sup>

From this passage it is clear that, at first, they were not sure if they were making the right decision by excluding depictions of violence and war. From Druyan's brief recounting of their dinner conversation, it seems that the team is once again motivated by the power of the frontier trope—specifically, by appealing to the lone, pioneering Voyager's certain expansion into unknown futurity, isolated and distant from the society it represents—which helps validate their particular leaning toward 'the best,' rather than 'the accurate.' They ultimately end up choosing idyllic sonic delights (e.g., crickets, the sound of a kiss, rain fall, ocean waves, whale songs), rather than violence, warfare, colonization, and other forms of sociopolitical forms of harm and destruction. Indeed, Druyan indicates that they came to "no conclusion" at dinner that night, but throughout the course of reading *Murmurs*, and by looking at the archive itself, it becomes clear that the team of six agreed upon one thing: let us commemorate only the best of ourselves. Throughout the process of greetings, collecting images (as I explore below), and recording sounds, the 'best of ourselves' becomes the artifact of the frontier for the team, the very thing to be carefully archived and commemorated, to be sent out into the unknown depths of space, speeding far away from humanity's more complicated and ominous truths. This is where the

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<sup>84</sup> Ann Druyan, "The Sounds of Earth" in *Murmurs of Earth*, 153.

Shakespearean epigraph becomes ironic as it beseeches the reader, “Be not afeard [...] and hurt not.” Yet, in this context, the act of excluding any media in the archive that depicts violence actually *does rhetorical violence* by invalidating the people, the voices, the lives who experienced it during their time on Earth. Survivors and creators of violence are unable to speak; their voice goes mute, and remains as silence on the recording.

In fact, in the book *Why Voice Matters*, Nick Couldry began by asserting that “human beings can give an account of themselves and of their place in the world”<sup>85</sup> (p. 1) and how “treating people as if they lack that capacity [to give their account] is to treat them as if they were not human; the past century provides many shameful examples of just this.”<sup>86</sup> (p. 1). Perhaps Couldry did not anticipate his insight being applied to the absence of voices on an interstellar archive—but based on his work, I imagine that he would most likely agree that the strategic refusal to commemorate the voices and lives of those who experience violence only harms and silences them further. His work addresses how contemporary media fails to provide the means for the public to give an accurate account of themselves, for their voice to be heard—and that is, in part, what’s at stake in the narrowing of sounds and voices curated on the Golden Record: who, what is allowed to be heard? In McKerrow’s article, “Critical Rhetoric: Theory and Praxis,” he theorizes about domination, power, and ideology, and how society’s more elite groups are able to place “restrictions on who may speak, how much can be said, what may be discussed, and on what occasion.”<sup>87</sup>

Interestingly, this intention to restrict the archival artifacts to commemorate only ‘the best of ourselves’ was not a concern that was unique to them alone. Instead, the notion of upholding

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<sup>85</sup> Nick Couldry, *Why Voice Matters: Culture and Politics After Neoliberalism*. (Los Angeles: Sage Publications, 2010), 1.

<sup>86</sup> Ibid.

<sup>87</sup> Raymie E. Mckerrow, “Critical Rhetoric: Theory and Praxis,” 92.

the ‘best of ourselves’ seems to be a kissing cousin to ‘the frontier’ trope, and was publicly, and politically, put into motion a decade earlier in John F. Kennedy’s 1962 speech, whose discourse was peppered with frontier politics and its colonizing ideals:

There is no strife, no prejudice, no national conflict in outer space as yet. Its hazards are hostile to us all. Its conquest deserves *the best of all mankind*, and its opportunity for peaceful cooperation many never come again. . . . We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve *to organize and measure the best of our energies and skills*, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too [emphasis added].<sup>88</sup>

What is the Golden Record, if not the scientific showcasing of the U.S.’s ability to organize and measure ‘the best’ of our energies and skills? The conquest of the frontier of space—which ‘we intend to win’—deserves *the best* of mankind. As with ‘the frontier,’ there is a hierarchy implied by ‘the best of ourselves / mankind’ trope: ‘the best’ clearly does not include everyone. It gestures to our best civilians, the scientists, the superior men (and . . . women?) who strike out into the unknown to tackle the impossible on behalf of the rest of us. Indeed, in Kennedy’s speech, the collective ‘we’ could potentially harken back to Roosevelt’s idea of the frontiersmen: the expert scientists and engineers who will find new paths into new worlds, but will require the public to praise and support their efforts as they endure.

The ‘best’ theme also moves unabashedly toward the implication that the marginalized, the weak, the diseased, the rejected, the damaged or otherwise disinclined are not encouraged to participate. Only the *best* go forward. Admittedly, nowhere in *Murmurs* did I find any indication that the process of curation was *directly* influenced by Kennedy’s speech; nevertheless, the seamless rhetorical alignment of ‘the best’ of ourselves and mankind underscore the timely political status and power wielded by attitudes of the frontier in U.S. space exploration. The

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<sup>88</sup> A complete transcript of the John F. Kennedy Moon Speech at Rice Stadium on September 12, 1962 can be accessed at <https://er.jsc.nasa.gov/seh/ricetalk.htm>.

NASA team's evasion of darker, more honest depictions of life on Earth—to eternally preserve a brighter, better side of humanity—undermines the reality of human experience in order to uphold and memorialize ideals and representations of existence as approved by the pioneering few.

Ann Druyan's hesitancy regarding the battlefield recordings was not the only noteworthy instance of selection and deflection. When discussing the method of how *images* were selected for the archive, team member John Lomborg explains why he and the team agreed to sidestep any media depicting war, crime, disease, and poverty. Compared to Druyan's more emotive retelling of uncertainty about the World War I battlefield sounds, Lomborg's tone seems somewhat more detached, even businesslike:

There were a few topics that we intentionally avoided. We reached a consensus that we shouldn't present war, disease, crime, and poverty. It would be naïve to deny the importance of these phenomena in human culture and history—after all, more human beings have killed one another or starved to death than have written string quartets. Yet we felt that we were making something that would survive us and our time—something that might be the only token of Earth the universe would have. We decided the worst in us needn't be sent across the galaxy. Also, we wanted to avoid any sort of political statement in this message, and a picture of Hiroshima or My Lai—or of a noble and heroic warrior, for that matter—seemed more an ideological statement than an integral part of an image of Earth.”<sup>89</sup>

From a critical perspective, it is almost amusing to realize that Lomborg and the others sought to avoid making any political or ideological statement, while at the same time curating an archive comprised entirely of a superior side of humanity as a 'token of Earth.' The work itself is profoundly ideological. From a rhetorical perspective, especially, this plainspoken deflection advances an emergent, commemorative, scientific ideology rooted deep within the metaphor of the frontier. The archive strains under the substantial weight of hierarchy and systems of power inherent in the team's decision to avoid the more disreputable faces of humanity; when looking

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<sup>89</sup> Jon Lomborg, "Pictures of Earth" in *Murmurs of Earth*, 76.

through a critical rhetorical lens,<sup>90</sup> I am able to better see how vast populations of people on Earth (and their experiences throughout history) are suddenly disciplined, subjugated, and/or controlled by elite curators and their synecdochal curation processes. The scientists—by this point in history already construed as cultural heroes and pioneers exploring unclaimed territory (think back to Edwin Black, JFK’s speech)—sit near the top of the hierarchy; they are the ones who are looked up to, and are trusted by the public to know what/who deserves representation and what/who does not. But if the work of critical rhetoric seeks to unmask and demystify these discourses of power, and to further understand the integration of scientific power in society and its institutions,<sup>91</sup> I searched to see if any of the team members were aware of their own ideological enactment upon creating these interstellar artifacts.

As it turns out, Sagan does acknowledge in *Murmurs* how, after creating the original Pioneer plaque (the inspiration for the Voyager records), he and his team faced feminist and racial criticism for their artistic depictions of human bodies on the plaque. He reveals how there were “complaints that this [Pioneer] message was constructed by a very limited group of humans—in fact, three humans—and thus was neither representative of the human race as a whole nor perhaps as informative as it could be. There were editorials published in the British press demanding that any future similar enterprise be engineered by a large international ecumenical group of scientists and lay people.”<sup>92</sup> He adds that after facing such public criticism, “we decided that most of these criticisms had no merit” and that actually “no great mistake had been made.”<sup>93</sup> What better indication of hierarchy of power? Of supremacy as a pioneer on the frontier, as an authority who surely knows better than the rest? It is significant to note how he

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<sup>90</sup> Guided here by Raymie McKerrow, “Critical Rhetoric: Theory and Praxis.” In *Communication Monographs*, vol. 56, 1989.

<sup>91</sup> Ibid.

<sup>92</sup> Carl Sagan et al., *Murmurs of Earth*, 59.

<sup>93</sup> Ibid.

succinctly denies the merit of this public critique, especially the ones from British editorials demanding that future projects (like Voyager would be, as successor of Pioneer) to be taken up by a larger, more representative group of scientists and lay people. Yet his position as scientist seems to allow for a sense of immunity and deniability. No great mistake had been made, he tells the reader.

In the case of the Voyager Golden Records, too, Sagan succinctly addresses how some members of the public openly “criticized us for presenting only the favorable circumstances of mankind and chided us for not including scenes of famine, devastation, ravaged cities and nuclear weapons explosions.”<sup>94</sup> In defense of their decision, Sagan informs the *Murmurs* audience that “it was an issue we debated long and hard during our deliberations on repertoire. . . . There is no question that destruction is a characteristic aspect of what we are pleased to call human civilization.”<sup>95</sup> There is, arguably, a subtle tone of disdain or even sarcasm detectable in the syntactical parallel between the acknowledgment of destruction in relation to how *we are pleased* to consider such destruction as a serious facet of humanity.<sup>96</sup> From there he clarifies that the avoidance of humanity’s more terrible themes was done out of concern for extraterrestrial misinterpretation. According to Sagan, the NASA team did not want the alien audience in some distant futurity to see/hear the violent content and somehow misunderstand it as a threat: “...the gesture could be interpreted by an uncharitable recipient as an intent of galactic aggrandizement.”<sup>97</sup> Once again, the imagined, pivotal concern around ‘making contact’ with the Other audience overshadows the team’s initial interest in seeing the world ‘as a whole.’ This

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<sup>94</sup> *Ibid.*, 40

<sup>95</sup> *Ibid.*

<sup>96</sup> Perhaps Sagan is disappointed in having to admit to the darker byways of existence on Earth—the grittier, less noble experiential forms of life—as if the reality of it could be wished away by a gilded record launched into space.

<sup>97</sup> Carl Sagan et al., *Murmurs of Earth*, 40.



terministic screening is made even more apparent when Sagan concludes his defense by asking: “Besides, is it a mistake to put our best face to the cosmos? We tried to send our best music. Why not a hopeful rather than a despairing view of humanity and its possible future?”<sup>98</sup> Here there is an implicit appeal to the frontier in this justification (i.e., appealing to hopeful possibilities of our future in space, sending out ‘our best,’ as Kennedy suggested) that reveals how NASA’s scientific discourses, decisions, and space technologies are systemically used to coach and subjugate bodies (alien, terrestrial) to engage in certain forms of action and argument.

In this case, one argument seems to be that scientists embarking upon ‘the frontier’ of space should commemorate *the best* of ourselves as a hopeful articulation of what humanity *could be* in futurity—not what it is now. Thus, regardless of what Sagan asserts at the start of *Murmurs*, the curation of the Golden Records was less about presenting a realistic reflection of the sights and sounds of Earth, and more about using media (in this case, images and audio recordings) to remember and represent the more innocuous aspects of humanity and life on Earth. Indeed, according to cultural theorist Stuart Hall, “Representation is a very different notion from that of reflection. It implies the active work of selecting and presenting, of structuring and shaping; not merely the transmitting of an already-existing meaning but the more active labor of *making things mean*.”<sup>99</sup> Hall’s insight clarifies how the processes of representation often constitutes the very world it aims to represent. Thus the archival media collected and organized for the Voyager Golden Records do not reflect the world, so much as they *re-present*. This exigency to re-collect and re-present the world in such a superlative light is timely in its alignment alongside tensions of the Cold War and the uncertainty of the planet’s future. Sagan’s lingering question, then, about why we should ‘put our best face forward’ reveals

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<sup>98</sup> Ibid.

<sup>99</sup> Cultural theorist Stuart Hall, as cited by David Croteau and William Hoynes in *Media/Society: Industries, Images, and Audiences*. 3rd ed. (Thousand Oaks: Pine Forge Press, 2003), 168.

how scientific discourse continues to establish itself as a powerful thread in the fabric of sociopolitical power by its ‘pioneering’ ability to produce idealized re-visions of the world, its future, and its people. In so doing, the Golden Records downplay, and in some cases outright deny, statuses of knowledge and experience among members of the world it aims to commemorate.<sup>100</sup> The social tensions established by violence, starvation, warfare, prejudice, and destruction are glossed over in favor our more golden moments. In so doing, implications about audience emerges.

### **Fantasies of Audience**

For whom is this record? From my consideration of the *Murmurs*, there may be three audiences: humanity as seen through the scientific mirror (the “best of ourselves” representation), ‘us’ as a future other, and the extraterrestrial other meant to receive us. The previous section mapped out and critically assessed the rhetorical ways in which Sagan and his team at NASA enacted a “frontier” ethic—including how they sought to preserve only “the best of ourselves”—throughout the curation process of the Golden Record archive. In this section I aim to further trace inferences of the frontier trope by examining how the team’s privileging *selectivity* during the process also colonizes and even constructs their respective audiences.

Critical insight for this work is primarily guided by Michael McGee’s work in “In Search of the People: A Rhetorical Alternative,” wherein he claims that notions of “The People” may “be strictly linguistic phenomena introduced into public argument as a means of “legitimizing” a collective fantasy.<sup>101</sup> McGee goes on to theorize that “The people,” therefore, are not objectively real in the sense that they exist as a collective entity in nature; rather, they are a fiction dreamed

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<sup>100</sup> Raymie E. Mckerrow, “Critical Rhetoric: Theory and Praxis,” 92.

<sup>101</sup> Michael C. McGee, “In Search of ‘The People’: A Rhetorical Alternative.” *The Quarterly Journal of Speech* 61, no. 3 (1975), 235.

by an advocate and infused with an artificial, rhetorical reality by the agreement of an audience to participate in a collective fantasy.<sup>102</sup> The collective fantasy of ‘the people’ of the U.S., for instance, became clear when John O’ Sullivan wrote in 1839 that [the U.S.] was ‘destined to be the great nation of futurity... *We* are all the action of human progress and who will, what can, set limits to *our* onward march? [emphasis added]’<sup>103</sup> This mobilizing sense of ‘We’ (the People) drives the dominant, agreed-upon belief that the U.S., and its ‘people,’ remains ‘number one’ among all the countries in the world (such an appeal was adopted during Cold War, and haunted motives of the Space Race for years to follow—including Voyager). This enduring collective fantasy was then extended to people of the world—not just U.S.—during the NASA team’s decision to collect and archive only “the best of ourselves” on the record. This extension is seen, again, during Kennedy’s speech about how conquering space deserves “the best of all mankind.” The best of all mankind, despite seeming inclusive with the use of “all mankind,” still gestures toward the superiority of the United States in particular. The collective fantasy thus carries on: *We are the best*. The sense of combined superiority is an artifact of the U.S. that apparently ‘we’ should aim to honor and remember (and never mind the fact that this superior sense is, in itself, a serious hegemonic shortcoming). The legitimization of this ‘best’ collective fantasy hinges on Sagan’s question, “Why not [send] a hopeful rather than a despairing view of humanity...?”<sup>104</sup> Why not archive only the superior histories and artifacts of life on Earth?<sup>105</sup> In so doing, ‘the people’ of Earth and the complexity of their experiences are reimagined through the lens of a fictionalized ideal advanced by Sagan and his NASA constituents, scientists who infuse the ideal with an artificial sense of reality (only the best music, only peaceful images, only sweet,

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<sup>102</sup> Ibid.

<sup>103</sup> John O’ Sullivan, as quoted by Linda Billings in “Frontier Days in Space: Are They Over?” 188.

<sup>104</sup> Carl Sagan et al., *Murmurs of Earth*, 40.

<sup>105</sup> I discuss a new interpretation of this attitude in the final chapter.

comforting sounds of Earth, only greetings from peaceful nations). The curation of the Golden Record advances a collective fantasy, a utopian archive largely agreed upon by all those who buy into “the best of ourselves” fantasy. As Linda Salzman Sagan writes: “We felt it was fitting that Voyager greet the universe as a representative of *one community*, albeit a complex one consisting of many parts [emphasis added].” One community, a collective ‘we’ that reimagines what life on Earth could be. This ousts all those on Earth who do not conform or constitute the ‘best,’ of this one community as understood to be the dominant, sanctioned culture of Earth. Thus the colonial work present in the record could be said to “transform social and historical dissimilarities into universal, metaphysical differences,”<sup>106</sup> ultimately essentializing the characteristics of humans for the benefit of scientists representing ‘us’ as the expand outward on to new frontiers.

Hopefully by this point it would seem fair to claim that even “the frontier” metaphor itself is also a collective myth, an agreed-upon fantasy strengthened and perpetuated by public discourse, particularly as it weaves across scientific exploration and innovation. The lifecycle of this persistent myth began as a rhetorical device and rationale for expanding the U.S. westward, before moving to more broadly “shape national expressions of ‘self’”<sup>107</sup> in the twentieth century (and beyond) via scientific endeavors. The very idea of the frontier trope, which has indeed been revitalized by modern space exploration, implies an imperialistic venture, an expansion into unknown territories that harbor ‘alien’ inhabitants—the Other. Therefore, I analyze how “the alien Other,” as imagined throughout the team’s narrative in *Murmurs*, are rendered so indeterminate as to become fantasies themselves, processed and preserved through the curation of the Golden Record archive. Thus I contend that the subtle, hegemonic perpetuation of

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<sup>106</sup> James Jasinski in the “Other, Rhetorical Construction of” entry in *Sourcebook on Rhetoric*, 412.

<sup>107</sup> Gregory M. Pfitzer, “The Only Good Alien Is a Dead Alien: Science Fiction and the Metaphysics of Indian-Hating on the High Frontier.” *Journal of American Culture* 18, no. 1 (1995), 51.

Othering needs to be addressed because, just as frontiersmen crossing the prairies conjured up collective fantasies about ‘alien others’ (i.e., Native tribes), space scientists and the public of the twentieth and twenty-first century are dreaming up more Others—this time, in outer space. The way that this attitude gains traction, as I will show, is often enacted through work of science fiction—sometimes with surprising conclusions.

### **The Recipients**

In her concern about the frontier and ideals of colonization, Patricia Nelson Limerick, a leading contemporary historian of the American West, argued that members of the space community in the West should critically consider how they enact ideals of the frontier: “To many advocates of space development, American history is a straight line, a vector of inevitability and manifest destiny linking the westward expansion of Anglo-Americans directly to the exploration and colonization of space.”<sup>108</sup> According to this model, space exploration is “promoted as an escape from Earthly problems, colonization as a safety valve for social stresses.”<sup>109</sup> Upon imagining the collective fantasy of the frontier in space exploration and colonization, the scientific pioneers need an audience, a recipient to whom they may direct their scientific undertakings; they need an Other audience.

In their work on rhetorical criticism and concerns of audience, Campbell and Burkholder delineate the following types: actual audience (those who receive the message), immediate audience (those who are present when the message is delivered), and mediated audience (those who read or hear it later). These overarching categorizations are relatively standard in rhetorical

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<sup>108</sup> Notably, this idea of colonization for a ‘safety valve for social stresses’ will come in to play in the final chapter; Patricia Nelson Limerick as cited by Linda Billings in “Frontier Days in Space: Are They Over?” 187.

<sup>109</sup> Ibid.

criticism. However, upon considering the interstellar discourse of the Golden Record, it is rather unique, at least when compared to a more traditional piece of text or oration. With the record, the lines between actual, mediated, and immediate audiences span unprecedented dimensions of time, space, and knowable audience. In fact, the complicated overlays of audience (Aliens? Humanity? Future humanoids?) demand examination of a key question: for whom was this archive actually made, and why?<sup>110</sup> In Chapter 4 of *Murmurs*, “A Voyager’s Greetings,” Linda Salzman Sagan writes about their considerations of audience while procuring recorded greetings from Earth.<sup>111</sup> In the beginning of the chapter she informs the reader of the intended audiences meant to benefit from the greetings, and from the archive more broadly: “During the entire Voyager project, all decisions were based on the assumption that there were two audiences for whom this message was being prepared—those of us who inhabit Earth, and those who exist on the planets of distant stars.”<sup>112</sup> When analyzing *Murmurs* with the intent to learn more about their attitude regarding those who “exist on the planets of distant stars,” it is clear that these ‘aliens’ out on the frontier are often already imagined as entities ready to receive us. After all, the records are, in large part, for them. Interestingly, throughout the text, the team mostly refer to their audience as “recipients” of the record—the collective, assumed extraterrestrials. The rhetorical imaginings became key in curating images for the record. For instance, Jon Lomborg tells the *Murmurs* reader that “I found myself increasingly playing the role of extraterrestrial, a mental exercise... ‘What would ETI [extraterrestrial intelligence] make of this?’ ...I would look at pictures and try to imagine that I’d never seen the subject before. ...What was ambiguous?

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<sup>110</sup> The “why” will be addressed further in Chapter IV.

<sup>111</sup> It’s worth noting here that, according to Sagan, more than 87% of the world’s population is represented by the languages onboard the Voyager spacecraft.

<sup>112</sup> Carl Sagan et al., *Murmurs of Earth*, 125.

How could scale be deduced?”<sup>113</sup> Through this mental imagining, he becomes concerned that their pictures might not be understood by aliens, who may have different senses: “It may be an insoluble problem, especially in the unlikely case that those who find Voyager (whom I refer to as “recipients”) have no sense as we understand them.”<sup>114</sup>

Who are the recipients? What does it mean that the curators had to literally imagine themselves as such? The various audiences of the Golden Record are complex, which is why I want to note something that Campbell and Burkholder do not address, but seems to be quietly loitering throughout the Golden Records curation: Philip Wander’s idea of the Third Persona. In short, his concept denotes the implied audiences which are not present and/or are excluded from a given rhetorical act. The purpose of his theory is to begin recognizing the unrecognized voices of an audience, an audience who has been denied power or voice. Wander writes:

The Third Persona, therefore, refers to being negated. But "being negated" includes not only being alienated through language... The objectification of certain individuals and groups discloses itself through what is and is not said about them and through actual conditions affecting their ability to speak for themselves... negation extends beyond the “text” to include the ability to produce texts, to engage in discourse, to be heard in the public space.<sup>115</sup>

Two groups, I argue, make up the body of the Third Persona (who, throughout the curation process and subsequent launch of Voyager, may not be even considered to exist) because their voices go unacknowledged. The first group, certainly, is the vast population of people throughout history who remain unaccounted for on the records, given their relation to more tragic themes of life on Earth. Anyone who experienced violence, sadness, war, fear, shame—they were denied and excluded by the Golden Records because they do not encompass “the best” of what we have

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<sup>113</sup> John Lomberg, “Pictures of Earth” in *Murmurs of Earth*, 77.

<sup>114</sup> Ibid.

<sup>115</sup> Philip Wander, “The Third Persona: An Ideological Turn in Rhetorical Theory,” *Central States Speech Journal* 35 (1984): 210.

to offer. The second group, I argue, is what the team continually refers to as “the recipients” of the records, the collective alien audience that is assumed, yet not present, and perhaps not even in existence. They become an imagined audience that, despite being the primary ‘recipients’ of the archive, are alienated by the records. This alienation is demonstrated by Jon Lomberg playing the role of an extraterrestrial. As Wander says, the Third Persona is “the ‘it’ that is not present, that is objectified in a way that ‘you’ and ‘I’ are not.”<sup>116</sup> This is why it is easy for the curation team to objectify the recipient other; they are not present.

The trend of naming and imagining ‘the recipient’ continues. Team member Frank Drake, in his chapter “The Foundations of the Voyager Record,” discusses aliens at some length. At one point he conjectures that, “If ever there are recipients of the Voyager record, they will recognize that we certainly are clever enough to arrange such a helpful combination of sounds and pictures.”<sup>117</sup> Here again he dances around the “best of ourselves” motif curated in the record itself—surely the recipients will be able to infer that ‘we’ are quite clever and superior in this scientific undertaking. However, in his worry about the layout of the record (i.e., the team did not have time to carefully mix and correlate the media; instead, the music, sounds, and images are all presented separately), he imagines how the aliens will naturally assume we were “[t]oo rushed, no time to organize. Other demands, other commitments. Interstellar messages aren’t the most important things in the civilization of this era. Not yet, anyway. This They will know. Perhaps this will be nothing new to Them. Perhaps there will be a motion we wouldn’t recognize, to Them a nod, as They realize that a billion years before there had been a civilization little different from Theirs.”<sup>118</sup> The capitalization of Them as a collective whole, a distant Other,

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<sup>116</sup> Philip Wander, “The Third Persona: An Ideological Turn in Rhetorical Theory,” *Central States Speech Journal* 35, no. 4 (1984), 209.

<sup>117</sup> Frank Drake, “The Foundations of the Voyager Record” in *Murmurs of Earth*, 69.

<sup>118</sup> *Ibid.*



speaks to the imagined construction of life beyond Earth. In the minds of the scientists, ‘They’ are already real, and we have the ability to conjecture about what They will think. The team strains to imagine a civilization similar to ours, with the ability to think, sense, and assess. Aliens become a fiction of the frontier—perhaps a fiction turned non-fiction—as fantasized by the team, by the public, by probability.<sup>119</sup> They are the team’s Other audience. In regards to the rhetorical construction of the Other, Blumenberg suggests how “individuals create and/or discover their identities through their interactions with ‘what they are not’ or people who are different—who are other.”<sup>120</sup> This idea is meant for Others as in other groups of terrestrial beings—but it overlaps well with the frontier trope’s move to more broadly “shape national expressions of ‘self’”<sup>121</sup> by engaging with the other, out on the frontier of the unknown. Thus I contend that the exposing this ideal of Othering needs to be addressed when dealing with space exploration because, like the “rugged” frontiersmen expanding westward agreed upon collective fantasies about ‘others’ (i.e., Native tribes), space scientists and the public of the twentieth and twenty-first century are now dreaming up more Others—this time, in outer space. In this respective, the role of science fiction comes in to play in surprising ways.

To foreground this idea of science fiction and the frontier, I turn to American Studies scholar Gregory Pfitzer who looks at science fiction in the article “The Only Good Alien Is a Dead Alien: Science Fiction and the Metaphysics of Indian-Hating on the High Frontier.” Here he analyzes how the frontier myth is revitalized through fictionalized narratives of frontiersmen and alien Others. In his article, he writes:

In chronicling the somber realities of a dying frontier, Wister [author of Western fiction] capitalized temporarily on the region’s romantic associations with decline and decay. But nostalgia for the irrecoverable could not sustain the myth permanently. If the West and the

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<sup>119</sup> Ibid.

<sup>120</sup> Blumenberg, as reviewed by James Jasinski in *Sourcebook on Rhetoric*, 411.

<sup>121</sup> Gregory Pfitzer, “The Only Good Alien Is a Dead Alien,” 51.

savage Indian seemed to be losing their power as legitimate and verifiable symbols of tension and regenerative force in American culture, then writers who wished to employ frontier mythologies were forced to work with increasing ingenuity and risk. Science fiction writers took the lead on this matter, focusing on outer space travel as a new milieu for the renewal of frontier mentalities and on aliens as metaphoric Indians victimized by an ethic of conquest extended into new arenas of discovery and suspense...<sup>122</sup>

The final line in this excerpt indicates that writers turn toward perspectives of the other aliens as *victims*, the collective ‘recipients’ of conquest and colonization. This theme pops up in many sci-fi books, wherein writers began to move in as critical commentators of new frontiers and the potentially hegemonic mentality surrounding it. In fact, science fiction stories and narratives about space and interstellar civilization rose in popularity in the mid-twentieth century, and only grew over the decades (e.g., the film *Star Wars* came out the same year the Voyagers launched into space). The influence of the collective fantasy regarding the frontier, aliens, and imperial conquest—as construed by science fiction writers specifically—seemed to weigh on Sagan and his team. In fact, upon reviewing who was consulted for the curation of the Golden Records, Sagan discusses how, “Because some science-fiction writers with backgrounds in science have been thinking about such problems longer than most of the rest of us, I also queried my friends Isaac Asimov, Arthur C. Clarke, and Robert Heinlein.”<sup>123</sup>

Because the authors “emphasized that the receipt of the message by an extraterrestrial civilization was chancy at best,”<sup>124</sup> most of the insight was geared more toward a broad sense of futurity. (Could this be, too, why the best of ourselves were commemorated? To remember ourselves in a certain way to future versions of ‘us’? These questions will be addressed in the following chapters.) Overall, Heinlein suggested that Voyager be “equipped with radio corner reflectors so that it could be easily found by some future generation of fast terrestrial spacecraft,”

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<sup>122</sup> Gregory Pfitzer, “The Only Good Alien Is a Dead Alien,” 55.

<sup>123</sup> Carl Sagan et al., *Murmurs of Earth*, 11.

<sup>124</sup> *Ibid.*

and Clarke insinuated that it should “contain a message to our remote descendants saying, ‘Please leave me alone; let me go on to the stars,’ ...*a statement of hope* that our civilization would continue long enough for that message to be read [emphasis added].”<sup>125</sup> The science fiction writers recruited by Sagan wrote stories that dealt with hopeful alien contact, technological efforts of communication with aliens, and futures in space. Even Carl Sagan went on to write popular science books and fiction, most notably *Contact*. In so doing, the writers deal somewhat more carefully with constructions of the alien Other as a ‘recipient’ of humankind’s conquering mentality. Here I think it helpful to briefly note that McGee, upon turning away from classical considerations of audience, critiqued how, when it comes to analyzing messages for a given audience (this includes atypical messages like that onboard the Voyagers) he argues that “critics have taken ‘people’ and ‘audience’ to be no more than plural abstractions of ‘person’ or ‘individual.’”<sup>126</sup> When the audience is generalized to the point of abstraction, discourse surrounding their subjugation and/or imagined colonization is easier to enact. Pfitzer points out, however, that “science fiction writers were the first to voice these suspicions [regarding mentalities of frontier alongside violence and colonization], expressing concern that the negative qualities of the original western mythology might be recapitulated dangerously in postwar infatuations with outer space.”<sup>127</sup>

An example of this is when renown science fiction writer, Ray Bradbury, used *The Martian Chronicles* to push back against the commonplace tropes of aliens, others, and the uptake of Western colonization. In the story he “depicted the clash between space-traveling Americans and native Martians in the language of western conflict and conquest... Like their prototypes on the American frontier, Bradbury’s space travelers pave the way for their own

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<sup>125</sup> Carl Sagan et al., *Murmurs of Earth*, 11.

<sup>126</sup> *Ibid.*

<sup>127</sup> Gregory Pfitzer, “The Only Good Alien Is a Dead Alien,” 58.

Empire-building by spreading disease, which unintentionally but effectively destroys the helpless Martians.”<sup>128</sup> Here he makes it clear that hegemonic work of the frontier is not about intention, but rather its effects. According to Pfitzer, “the remainder of Bradbury’s novel is a highly compacted, intensely critical examination of the tale of the Old West as retold on Mars. Preserving the conventional language of the frontier myth, Bradbury turned its tropes and metaphors in on themselves,” thereby disclosing the “shallow and mercurial properties of America’s predominant cultural construct.”<sup>129</sup>

Along similar lines, the curation of the Golden Records initially seems to hint at the same shallow, problematic ideologies of the frontier of science and its implications for audience. When looking through a critical lens, it is concerning to note how the audience, or ‘recipients,’ is conjured up and sustained by a collective fantasy, the exigence of which is propelled in new directions thanks to science fiction. As Linda Salzman Sagan wrote: “...by sending a spaceship out of our solar system, we are making an effort to de-provincialize, to rise above our nationalistic interests and join a commonwealth of space-faring societies,” which could be construed as gesture toward the desire to avoid conflict, and to instead join alongside imagined allies. The intent to do harm is not present, but even if the team did not intend to do any harm, it is less about intention and more about effect (again, like in Bradbury’s story, the human explorers on Mars did not *intend* to wipe out the Natives with illness, yet it happened nevertheless). By choosing to remember only the “best of ourselves” on the record, the six curators (perhaps unintentionally) do rhetorical violence by tightly constraining who/what lived experiences deserve recognition on the record, how voices and sounds are remembered, and why. Furthermore, the ‘recipients,’ for whom the message is addressed, are construed as both future

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<sup>128</sup> Gregory Pfitzer, “The Only Good Alien Is a Dead Alien,” 58.

<sup>129</sup> Ibid.

humans and extraterrestrials who we hope will bear the weight of our memories, our stored memories of life on Earth. Thus I aim to clarify how the Golden Record is a considerable example of a technical apparatus of cultural memory, especially as it invokes a long line of memory work via the archive. To examine the curation process of the Voyager Golden Records is a start, but it is not enough. Therefore, in the following chapter, I analyze the records themselves as a technological, commemorative archive. Given that it is overtly designed to communicate and commemorate life on Earth to an ‘Other’ audience (as well as to those here on Earth more indirectly), I look at the actual medium, particularly because it is important to acknowledge not only *who* remembers through science and technology—but *what* does the remembering, and how. Based on the *Murmurs* commentary, I argue that these records speak in posthuman, technological ways and, in so doing, they advance a form of space colonialism that deserves closer rhetorical examination. The colonization is enacted via technological advancement and connection as bound up by human counterpart—with memories, futures, media, and materials. Colonization is ongoing and evolving; like humanity, its uptake is intimately bound up within the extensive reach of its technological affordances. Now we are able to reach out and colonize the ‘frontiers’ of space but, instead of venturing out to lay claim to territories of space via human bodies, scientists (as pioneers on the as-yet-untouchable frontier) are now launching extensions of *ourselves* in the technological form of our murmurs, our memories, our material prosthetics. Thus the robots, the rovers, the landers, satellites and space probes all go out before us, pioneers in the dark, speaking eloquently on behalf of humanity, our prosthetic emissaries in deep space.

CHAPTER III

TECHNICALLY SPEAKING: THE GOLDEN RECORDS AS TECHNOLOGICAL,  
COMMEMORATIVE ARTIFACTS

“Each Voyager is itself a message. In their exploratory intent, in the lofty ambition of their objectives, in their utter lack of intent to do harm, and in the brilliance of their design and performance, these [spacecraft] speak eloquently for us.”

—Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*

Horses, covered wagons, stagecoaches, on foot. These were the vehicles by which pioneers carried out their manifest destinies on the frontier of the Wild West. Carried along with these material modes were a muddle of assumptions and memories: memories of a world left behind, assumptions about a world yet to come: Gold, land, freedom, adventure, Native others, frontier. In extending this idea to “the frontier” of science metaphor, I am led to the question of how the frontier of science was carried out particularly in relation to space science. What is produced when we “send the best of ourselves” via a technoscientific archive in space? As the following section explains, there are what I consider to be posthuman, technological regimes of commemorative practices being enacted via scientists and their objects. Furthermore, in order to layer the rhetorical work being done by “the frontier” of science framework, I argue that scientists are able to advance a practice of space colonization enacted through technological extensions of ‘us,’ particularly via commemorative objects (as opposed to, say, the archetypal human pioneer on horseback) as they expand into uncharted frontiers. In *Murmurs*, it becomes clear that the records *say* and discursively engage a great deal. How, then, might these commemorative media remember and even “speak” for, and to, others in complex ways?

The medium of the record is critical to this study because, as Marshall McLuhan famously wrote in *Understanding Media*, the medium is the message. He goes on to describe how the “content” of a medium often “acts as bait, a juicy piece of meat carried by the burglar to distract the watchdog of the mind.”<sup>130</sup> Generally this means that people—and rhetorical scholars, too—tend to focus on the more obvious, comprehensible *content* of a medium in order to provide some valuable insight or information; in the process of doing so, however, we often neglect to trace key changes induced by media among human affairs, especially as they are integrated (and, I would add, entangled) subtly over long periods of time.<sup>131</sup> He argues that as a society’s values, norms, and standard ways of doing things change because of technology, it is only *then* that people realize the social implications of the medium. Henceforth I look primarily at the medium, rather than the archived content, of the interstellar archive itself. Specifically, I seek to examine not only who remembers through technoscientific means (NASA scientists, the curation team), but also *what* remembers, and how. Therefore, in this chapter I draw from various posthumanist concepts in order to better recognize the form and object of the Golden Records as commemorative technologies that remember and *speak* for, to, and with ‘us’ in material, technical ways. As I understand it, posthumanism encompasses larger, more complex theoretical frameworks in rhetoric (and beyond) that—in very brief terms—deprivileges human agency by also focusing on, and acknowledging agency of, non/inhuman objects, affects, and energies. The theoretical framework thus critiques the predominantly anthropocentric perspectives by intentionally, and critically, tracing the powers of non-human processes and materials in order to begin understanding how they interact and operate within, around, and alongside the human.

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<sup>130</sup> Marshall McLuhan, “The Medium is the Message” in *Understanding Media*. (London: Routledge, 1964), 19.

<sup>131</sup> *Ibid.*, 20.

In my mind this rhetorical work is particularly critical because the machine-led, memory-laden exploration on the ‘final frontier’ of space shows no signs of slowing down any time soon. And, more notably, this technical process of space colonial work is not being driven *solely* by humans. Instead it is, as I will explain, a complex assemblage comprised of humans and technologies, metal and machine, time and space, inquiry and images, hierarchy and history, archive and memory, science and the frontier, culture and publics, sound and song, metaphor and language... and on and on it goes, a vast web that could crisscross and interweave into each other indefinitely. There are so many elements—human *and* non-human—that make space endeavors possible, that it can be difficult to really know which strand to pull first. Hannah Arendt, upon pulling at a particular techno-scientific strand, discussed how the space age (writing in the time of the Cold War era and using the satellite *Sputnik* for example) hastened the already-accelerated pace of techno-scientific development, thereby denying humans the chance to pause and really fathom its impact upon us and the “human condition.”<sup>132</sup> She adeptly addresses how our quickly developing technological conquest of space leaves in its wake an *aporia* in language and thus “the trouble,” as Arendt puts it, is that we will “forever be unable to understand, that is, to think and speak about the things which nevertheless we are able to do.”<sup>133</sup> This is a profoundly critical concern that rings especially true in the twenty-first century and yet, as I discuss in the sections to come, perhaps this *aporia* exists precisely because humans do not concede to the idea that we are not the only ones involved in the speaking and the doing; the work is also redistributed and extended to non-human, techno-scientific forms across space and time. We do not yet account for this in our language practices. Indeed, according to David Crouch and Katarina Damjanov, “[Arendt’s] crisis in language has at its core a problem of ontology: a failure to recognize that the

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<sup>132</sup> Hannah Arendt, *The Human Condition*. 2nd ed. (Chicago: University of Chicago Press, 1958), 3.

<sup>133</sup> *Ibid.*



words we use to describe ourselves are always, and have always been, bound up in our technological modes of being.”<sup>134</sup> They go on to explain that, just as theorists like Gilbert Simondon and Bernard Stiegler argued (and Arendt disparaged, but did not deny), “our technologies are inseparably bound up with the evolutionary continuum of the human, and the migration of our [technical] ways of life into outer space still further complicates articulation of our techno-logic condition.”<sup>135</sup> In accordance with this idea, Hansen argues that “Technology just is what it appears to be: the material support for the genetic or quasi-vitalist ontology of textuality.”<sup>136</sup> Meaning, once it is determined to be a physical supplement or extension, technology thus “stops being an object of interpretation; investigation turns away from the question of whether *techne* is an adequate category for thinking about technology and toward the role it plays in the production of nature.”<sup>137</sup> The concern of what technology produces and affords, particularly in a posthuman sense, will reappear later on in this chapter, but for now I want to briefly illustrate how the Voyager Golden Records, as commemorative, techno-scientific artifact, are actually not the first, nor the last, of their kind. These commemorative technologies, upon being ‘inseparably bound up with the evolutionary continuum of the human,’ are instead variations on a theme that deserve closer rhetorical consideration as they prosthetically extend humanity—pieces of ‘us’—outward into space.

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<sup>134</sup> David Crouch and Katarina Damjanov. “Extra-Planetary Digital Cultures” in *M/C Journal (Online)* 18, no. 5. Accessed at <http://journal.media-culture.org.au/index.php/mcjournal/article/view/1020>

<sup>135</sup> Ibid.

<sup>136</sup> Mark Hansen, “From Metaphor to Embodiment: Resisting Technesis” in *Embodying Technesis: Technology Beyond Writing*. (Ann Arbor: University of Michigan Press, 2000), 94.

<sup>137</sup> Ibid., 97.

## Commemoration in Outer Spaces

Since the mid-twentieth century all the way up to the time of this writing, there has been an evolving practice of sending commemorative technoscientific objects in outer space. Although the following exemplars are not the foci of my study, being aware of their presence in space may enrich overall understanding of where this practice might ultimately be headed, and how we might approach it in the now-future. For some, these efforts may be seen as an act of optimism. For others, such as myself, this practice is an act of space colonization wherein we initially extend ourselves *technologically*, before eventually settling new worlds with bodies. Thus, these externalized, encoded memories in space are prosthetics of the human.



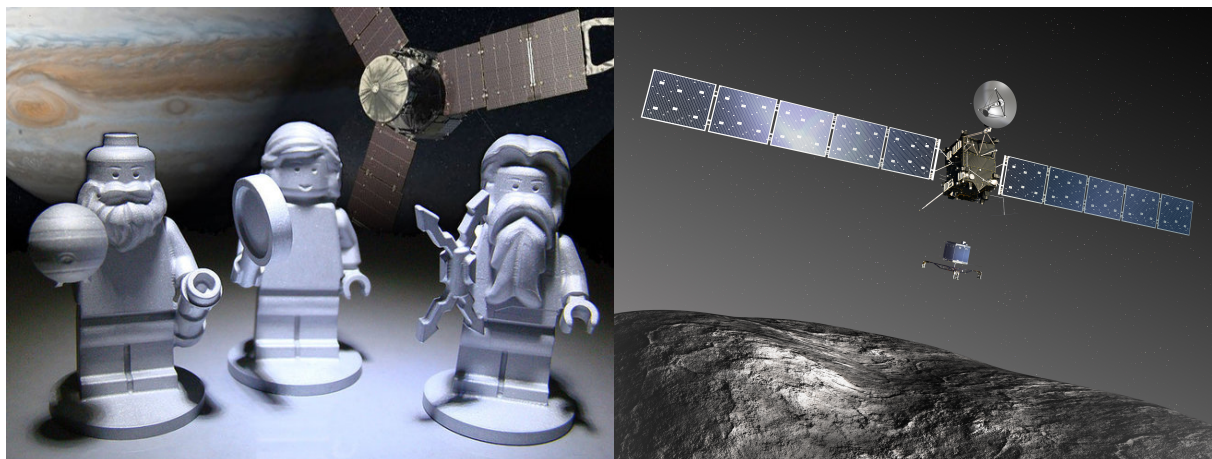
**Figure 3:** (left) Commemorative plaque on the moon in 1969

**Figure 4:** (right) Commemorative plaque and a sculpture, “Fallen Astronaut,” left on the moon in 1971 at Hadley-Apennine landing site. [Images courtesy of NASA / public domain]

In the first chapter I briefly discussed two space probes, Pioneers 10 and 11, and their plaques (or “mere greetings cards”) that inspired the creation of the Voyager Golden Records. Notably,

scientists and engineers also sent greeting cards on the backs of rockets to more ‘local’ outer space regions: On July 24, 1969, astronauts of Apollo 11 left a plaque on the dusty surface of the moon to commemorate the historic, manned-landing. It was a message left on behalf of ‘all of mankind’ on Earth (see Figure 3). As seen in the image, it reads: “Here men from the planet Earth first set foot upon the moon. July 1969 A. D. We came in peace for all mankind.” Carl Sagan would later comment that such a plaque—signed by President Nixon—was dismally ironic because, “As the United States was dropping seven and a half megatons of conventional explosives on small nations in Southeast Asia, we congratulated ourselves on our humanity. We would harm no one on a lifeless rock.” Astronauts also famously planted an American flag on the surface of the moon, to commemorate and communicate their historic lunar conquest. Later, in August 1971, the flight crew of Apollo 15 left an aluminum sculpture of an astronaut and a plaque (see Figure 4) on the moon. This particular site of commemoration acts more as a memorial honoring the lives of fourteen NASA astronauts and USSR cosmonauts who died for the development of space exploration (their names are in alphabetical order on the plaque). The small, human-shaped sculpture, called “Fallen Astronaut” by artist Paul van Hoeydonck, represents all the fallen astronauts/cosmonauts, laying silently on the surface of the moon. Today the Fallen Astronaut is no longer the only commemorative sculpture in space; there are also three metal LEGO figurines on board the Juno spacecraft orbiting Jupiter. The LEGO crew’s mission was part of an educational outreach program developed to encourage children to explore STEM (science, technology, engineering, and mathematics) careers (here, again, are subtle residues of the frontier of science trope). The three metal LEGO figurines are the Roman god Jupiter, his wife Juno, and the “father of science,” Galileo Galilei (see Figure 5). Upon being asked why his team put the LEGO figurines onboard, Scott Bolton, principal investigator for the Juno mission,

was quoted as saying, “We’re carrying all these instruments and, of course, our primary goal is to get all this new science data and bring it back to Earth ... Along that way, we also wanted to commemorate and *take a little piece of us* to Jupiter [emphasis added].”<sup>138</sup>



**Figure 5:** (left) Three LEGO figurines representing the Roman god Jupiter (right), his wife Juno (middle) and Galileo Galilei (left) on NASA’s Juno spacecraft. **Figure 6:** Artistic rendering of Philae and Rosetta orbiting comet 67P (photos courtesy of NASA)

Then there is, of course, NASA’s Voyager Golden Records, gilded phonographs carrying the encoded sounds, murmurs, and memories of Earth into deep space. Building upon the idea of using technologically complex media for commemoration comes *Visions of Mars*, a compact disc (CD) sent to Mars in 2007 as a message for future human inhabitants upon settling the red planet, fourth from the sun. According to the creators of the CD, The Planetary Society (whose tagline is “Your Place in Space”) the project can be summarized as follows:

*Visions of Mars* is a message from our world to future human inhabitants of Mars. It launched on its way on August 4, 2007 aboard the spacecraft Phoenix, and arrived at the Red Planet May 25, 2008. Along with personal messages from leading space visionaries of our time, *Visions of Mars* includes a priceless collection of Mars literature, and art, and a list of hundreds of thousands of names of space enthusiasts from around the world. The entire collection was encoded on an archival silica-glass mini-DVD provided by The Planetary Society, designed to last hundreds—if not thousands—of years. . . . The disk will be part of a

<sup>138</sup> Robert Z. Pearlman, “LEGO Figures Flying On NASA Jupiter Probe” in Spaceflight. *Space.com*. August 4, 2011. <http://www.space.com/12546-lego-figures-jupiter-juno-spacecraft.html>

relic of an ancient unmanned spacecraft named Phoenix, which landed on the planet in 2008. Possibly preserved as a historic memento, perhaps long abandoned and forgotten, Phoenix will have kept its secret through the long Martian years.<sup>139</sup>

Indeed, the *Visions of Mars* CD is intended to remind future humans of the sci-fi dreams and ambitions that inspired them in the first place. This CD, an archival, ‘historic memento’ for future Martians, further rearticulates the gesture of technical memory advanced decades earlier by Voyager, wherein humans begin making ‘our place in space’—first via sensory artifacts extended into space (i.e., the ‘sounds’ of Earth, ‘visions’ of Mars—all of which are archived, encoded memories), with the intention that some-body will catch up to it someday.

From plaques, to phonograph LPs, to CDs, to small sculptures, our modes of space expansion-via-commemoration is destined to move into the digital realm. With the advent of One Earth New Horizons Message, the petition mentioned at the start of Chapter I, the public, and scientists, now seek to curate a digital archive collected by a much larger population: the entire world. The international message would be digitally assembled for the interception and interpretation of extraterrestrials in some distant futurity. This digital interstellar message would aim to broaden democratic involvement in deep space communication and, in so doing, bring experiences of people in the world together to present a more inclusive sense of “us” to the universe. As of this writing, such work has yet to be approved, much less accomplished. However, a somewhat similar commemorative act took place in late 2016, when the European Space Agency (ESA) invited the global public to send Twitter messages for ESA engineers to digitally upload to Rosetta and Philae, the lander and its space probe that orbited comet 67p before crashing into it (see Figure 6). According to Sarah May, archeological researcher for the Assembling Alternative Futures for Heritage project, these digital messages were meant to be

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<sup>139</sup> “Visions of Mars” project explanation by The Planetary Society. For more information about this project, see their webpage at <http://www.planetary.org/explore/projects/vom/>.

“from anyone on Earth who wanted to say goodbye to the lander. When Rosetta crashes, it is hoped that the data storage, and thus the messages, will survive the crash.”<sup>140</sup> May goes on to explain that these Twitter messages to Philae, composed internationally, underscore how this technological effort quickly became “a memorial to the robot... for the future to remember something that is important to us.”<sup>141</sup> With pictures, sentiments in various languages, video links and other media, Twitter users from all over the world sent their farewells to Philae, a mechanized extension of our explorer-selves, now lying dormant on the surface of a comet, silently holding messages from people on Earth.

All of that is to say, as May points out, “there is a lineage, a heritage, to sending messages and *pieces of ourselves* to spacecraft [emphasis added].”<sup>142</sup> It is undoubtedly an evolving technoscientific practice that, I argue, needs closer critical, posthuman consideration if scholars are to begin accounting for the aporia of language that occurs alongside technological space exploration endeavors, as discussed by Arendt. As the above overview hopefully made clear, scientists are able to advance technological extensions of ‘us,’ particularly via commemorative objects as they explore uncharted frontiers of space.

Therefore, upon wanting to rhetorically examine how these commemorative technologies “speak” and remember for, and to, us and others in complex ways, it might be helpful to first get a sense of memory. What does it mean to remember—and how? In the following section I review what I mean by memory and the act of remembering in the context of this study. Although there are many rhetoric and communication scholars whose work focuses on internal, embodied mediations of memory (e.g., the Method of Loci used in Greek antiquity), for this

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<sup>140</sup> Sarah May, “#GoodbyePhilae: Memorials and Space Futures” in *Heritage Futures*. <https://heritage-futures.org/goodbyephilae-memorials-space-futures/>.

<sup>141</sup> Ibid.

<sup>142</sup> Ibid.

thesis I turn to more material, exteriorized modes of memory. The material aspect becomes important partly because, as Carl Sagan writes in *Pale Blue Dot* about who (or, rather, *what*) receives acknowledgement upon advancing into the frontier: “We tend to hear much more about the splendors returned than the ships that brought them.”<sup>143</sup> This comment illustrates the idea that, like most ventures into scientific “frontiers,” the vehicles that carry out the mission remain largely unrecognized for their influence. At the start of this chapter, I began by listing a few vehicles by which U.S. pioneers carried out their manifest destinies: Horses, covered wagons, stagecoaches, on foot. To be sure, these can easily be construed as mere *means* that helped achieve the ends of manifest destiny on the Western frontier. So, too, could the Voyager and its records be described as a mere means to achieve space supremacy for the U.S. during the Cold War (thereby rendering this study largely unnecessary). However, because rhetoric seeks to disclose the various, complex ways in which certain forms of argument and action (even scientific, technological actions) re/orient bodies toward some attitude or undertaking, the Golden Records are assuredly not that simple. When examined more critically, with the help of posthuman rhetoric, the medium of the records is arguably oriented as a material, technoscientific memory artifact that extend ‘us’ outward into space and time forever and, in so doing, set forth new memory practices as we begin seriously considering sending humans to the stars.

### **Mediating Memory via Technologies**

From the outset of approaching the Voyager Golden Records archive as an object of rhetorical study, I knew it would be important to not only analyze who remembers in this context (Sagan and the NASA team)—but *what* remembers, and how (i.e., the Golden Records as the medium

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<sup>143</sup> Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*. New York: Random House, 1994.

itself) as discussed in *Murmurs of Earth*. The material “what,” as the externalized, material mediation of memory, is worthy of rhetorical examination not only because “the medium is the message” but also because, according to Stiegler, societies have been, and continue to be, shaped and *sustained* by certain modes of retaining and recording events. Humans have taken up storytelling, writing, archives, libraries, photography, heirlooms, museums, art work, etc. in order to record and retain events and experiences of their time—to store and pass down memory. With such a lineage, Stielger adds that these “conditions for knowledge’s transmission are also those of its elaboration; the history of collective, mnemotechnic memory ‘can be divided into five periods: that of oral transmission, of written transmission with tablets or indices, with simple filing systems, with mechano-graphics, and with electronic seriation.’”<sup>144</sup> This transmission is key because collective memory is, above all, marked by what Stiegler calls *retentional finitude*—in short, it is marked by the fundamental inability of memory to contain itself. All memory needs supplement, an *extension* of itself, in order to be passed on through time and space.

Indeed, the material supplement is crucial because, as Olson, Finnegan, and Hope emphasize, “Remembering and memorializing are material practices. That is, we remember and memorialize in and through the artifacts, images, and objects that we create, circulate, appropriate, and use.”<sup>145</sup> In accordance with this, Dickinson, Blair, and Ott further illuminate how public memory is understood as “relying on material and/or symbolic supports—language, ritual performance, sites of memories, communication technologies, objects, and places that work in ways to consummate individuals’ attachment to the group.”<sup>146</sup> They go on to address the

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<sup>144</sup> Bernard Stiegler, *Technics and Time, 2: Disorientation*. Translated by Stephen Barker. (Stanford: Stanford University Press, 2009), 78.

<sup>145</sup> Lester Olson, Cara A. Finnegan, and Diane S. Hope, “Section II: Remembering and Memorializing,” in *Visual Rhetoric: A Reader in Communication and American Culture*, 100.

<sup>146</sup> Greg Dickinson, Carole Blair, and Brian L. Ott. Introduction to *Places of Public Memory: The Rhetoric of Museums and Memorials*. (Tuscaloosa: University of Alabama Press, 2010), 11.



fact that these “shifts in the meaning of memory and in the shape of memory practices have been catalyzed by technological innovation.”<sup>147</sup> The Golden Records, as one such material and symbolic support drifting in space, gestures to the powerful, ongoing evolution and revision of memory in society today, as enacted by science and technology; they provide its mediation and re-presentation.

Certainly in the case of the Voyager Golden Record as a scientific, technological innovation, the goal was to commemorate shared, sensory memories and ‘murmurs’ of an entire planet—arguably the most difficult endeavor in terms of archiving collective, cultural memory. As the previous chapter argues, however, perhaps it was not entirely ‘collective,’ given that the NASA team omitted a substantial amount of information and experience about existence on Earth. Therefore, for the sake of the study at hand, the various categories of memory (delineated as collective, public, cultural, etc.) can largely be regarded as somewhat synonymous because, as Jasinski states, “they all distinguish between an individual’s memory (memory as a subjective phenomenon) and memory as an intersubjective phenomenon (memory that exists among a group of people).”<sup>148</sup> In fact, in 1925, Maurice Halbwachs was the first to argue that individual memory can develop only in *interaction* with that of social networks and the larger community.<sup>149</sup> Later, in 1995, Stephen Browne defined public memory as “a shared sense of the past, fashioned from the symbolic resources of community and subject to its particular history, hierarchies, and aspirations.”<sup>150</sup> Even cultural traditions and their objects, as underscored by

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<sup>147</sup> Ibid.

<sup>148</sup> James Jasinski, “Memory,” in *Sourcebook on Rhetoric*, 355.

<sup>149</sup> Maurice Halbwachs, *Les Cadres Sociaux de la Mémoire*, 1925

<sup>150</sup> Stephen Browne, as cited by James Jasinski, “Memory,” in *Sourcebook on Rhetoric*, 356.

Heidegger, are the “stuff” of shared memory; these things are “the actual structure of possibilities handed down by the past.”<sup>151</sup>

According to Dickinson, Blaire, and Ott, contemporary rhetorical scholarship poses memory as a collective activity, not individuated—again, the motif reaffirms this work to be a shared, networked undertaking. That aligns fairly well with NASA’s attempt to archive cultural memory of Earth because, despite the NASA curators’ clear refusal to commemorate darker aspects of humanity, much of what is included—the sound of a heartbeat, rain, crickets chirping, an image of a human body, a flower—are sensory artifacts recognized and shared throughout the world over time. Overall, the work being done in rhetoric and memory is extensive and multifaceted—and cannot be reviewed fully here. However, I focus on memory practices as shaped by technological innovation. Indeed, Alison Landsberg, who advances the idea of “prosthetic memory,” is applicable to the Golden Record archive because it is construed as a “new form of memory”<sup>152</sup> that is “not natural, not the product of lived experience...but are derived from engagement with a mediated representation.”<sup>153</sup> The Golden Record archive, as an artifact of cultural memory, is a prosthetic memory, a cyborg memory technology that extends into space and time as a technological, artificial memory of Earth and its inhabitants through time.

Within this framework, I argue that collective memory is created and shared not only among other humans, but in and among non-human, material things as well—in the very media that function as the memory’s container. More specifically, technologies.

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<sup>151</sup> Ibid., 359

<sup>152</sup> Ibid.

<sup>153</sup> Ibid.

The material technology involved in memory is powerful rhetorically because it has the ability to mediate and directly affect what is remembered, and how. In so doing, it has the capacity to impact social, individual, and collective identifications. Indeed, Bowker touches upon this very idea while discussing Derrida and his comment that “our consciousness is different now because of the new information technology we have—in particular, through the mediation of the new memory prosthesis. I am fundamentally marked by my information technology,”<sup>154</sup> as well as structures of technological memory and archival modes as bound up in daily language (e.g., I’ll file that away for future reference, I didn’t get the memo, my life is an open book, just for the record, she is talking in code, I need time to recharge, don’t press his buttons).

In *Technics and Time 1: The Fault of Epimetheus*, Stiegler expands on this idea of humans being entangled and ‘marked’ with technology by developing an argument about how a technical object has an essential, distinct temporality and dynamic of its own. From there, he theorizes how our technologies are completely bound up with us and the evolutionary continuum of the human. In his work he posits that the “technical is the primordial supplement to the human into which we have been “exteriorizing” our “interiors” of social memory and shared culture to alter, assert and advance the material-social ambits of our living milieu” and which, as a result, have been changing the idea of what it is to be human.<sup>155</sup> Technologies, as “organized inorganic matter,”<sup>156</sup> mediate our relationships with the world; it is only through the organization of inert matter that culture or social life can exist outside of us. This technical organization and externalization of memory is timely when considering the cozy relationship between humans and technologies. In this contemporary moment, many people in the West and around the world are

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<sup>154</sup> Geoffrey Bowker, *Memory Practices in the Sciences*, 226.

<sup>155</sup> Bernard Stiegler, *Technics and Time 1: The Fault of Epimetheus*. (Stanford: Stanford University Press, 1998), 141.

<sup>156</sup> *Ibid.*, 17

undoubtedly bound up in their memory technologies that store, organize, and represent vast amounts of information external to themselves. According to Pruchnic and Lacey in “The Future of Forgetting: Rhetoric, Memory, Affect,” they emphasize how

the most dominant form of externalizing memory in the present time and thus the most ubiquitous interface of personal and collective memory, is, of course, the variety of contemporary information technologies that allow memory storage that is personal but not biological (computer memory, smart phones, Universal Serial Bus [USB] drives) and/or shared in cultural ecologies (Web presences, databases, Global Positioning System [GPS] navigational systems).<sup>157</sup>

Pruchnic and Lacey argue that these dominant technological media, through which memory is exteriorized, is often read as a progression toward the greater “interactivity”<sup>158</sup> of media (the ability of a user to interact with and/or contribute to a media). This greater interactivity is exactly what makes this very thesis possible, and will also make future space archives possible—like the Twitter messages sent to Philae on a comet—because memory technologies are quickly becoming increasingly advanced, accessible, sharable, and imbedded in daily life and innovative practice. These media will continue to alter the ways in which we remember.

In picking up on this technical tendency to exteriorize the interiors of collective memory, Ekaterina Haskins argues that that “any discussion of public memory ought to take into account the issue of mediation.”<sup>159</sup> By looking at memory as it finds itself entangled with mediation of technology, Haskins thus asks rhetoricians to be critically attentive to questions of power when it comes to mediation: “Which past is identified as worthy of remembrance? Who carries out the

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<sup>157</sup> Jeff Pruchnic and Kim Lacey, “The Future of Forgetting: Rhetoric, Memory, Affect” in *Rhetoric Society Quarterly*, 41(4) (June 2001), 5.

<sup>158</sup> Jeff Pruchnic and Kim Lacey, “The Future of Forgetting: Rhetoric, Memory, Affect,” 5.

<sup>159</sup> Ekaterina V. Haskins, “Between Archive and Participation: Public Memory in a Digital Age.” *Rhetoric Society Quarterly* 37, no. 4 (2007): 418.

work of recalling it? What forms does commemoration take?”<sup>160</sup> Such critical concerns, and others, should be closely considered because memory is undoubtedly mediated by material; its artifacts, and what those artifacts produce, are of rhetorical importance because, in their own respective ways, they enact certain forms of argument, action, and attitude in the world. For example, as addressed in Chapter II, the proliferation of space exploration technologies, exemplified by Voyager, upholds frontier metaphors and colonial endeavors of exploration and future occupation; the trope of the frontier thus *relies* upon these technologies. Without these technologies, the imagined frontier would collapse, for what is a frontier without its pioneers? Thus these ‘pioneering’ technologies project outward to speak on our behalf in the vast vacuity of space. With all this in mind, I analyze how the Golden Record—as a material, technological memory artifact of the frontier of science—represents, remembers, and *speaks* to and for humanity in critical ways.

Before going in that theoretical direction, however, I should note that it is clear how commemorative space technologies would complicate rhetorical scholars’ focus on public *places* of memory, wherein cultural events, peoples, things, and ceremonies of memory seek to provide some sense of rhetorical and physical stability in time: tourist locations, public museums, memorial sites, monuments, etc. According to Edward S. Casey, however, this idea of ‘places’ of public memory does “not guarantee constancy over time: to be public is to be subject to continual reassessment and revision.”<sup>161</sup> Perhaps the Voyager Golden Records, and their twenty-first century successors, reassess and revise this sense of physical stability in time as it is located in a constantly moving (mounted to the outside of the Voyager probe) place in outer space, far

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<sup>160</sup> Ibid., 402

<sup>161</sup> Edward S. Casey, “Public Memory in Place and Time” in *Framing Public Memory*, ed. Kendall R. Phillips. (Tuscaloosa: University of Alabama Press, 2004), 29.

from public interaction and presence. These memory acts ‘taking place’ in space, like the aforementioned *Visions of Mars* CD, the LEGOs figurines, and plaques on the moon, are far beyond human’s physical reach. In such cases, though, collective memory is still tied to place—but place becomes more complex and networked as it becomes mediated by things, by technologies of access. Today, because networks of technology can transcend and move fluidly across traditional boundaries of place and space, people are no longer limited to spatial constraints of memorial endeavors—e.g., if someone is unable to visit the Vietnam Memorial, at the very least they can watch a video about it on YouTube, access photos online, or watch a live feed of the site (this privileged assumption does postulate that the person has access to such technology—a power differential in memory access that should not be overlooked). In this present rhetorical study, too, I am only able to access information about the far-flung Golden Records by ‘going online’ to access the digital version of the record, by reading several books on the topic, by watching documentaries about it, etc. Therefore, even the Voyager archive—which is, as I argue, an extension of us—has extensions of *itself* in the form of other media. In short, there are layers upon layers of networked media operating across memory practices. As inspired by Stiegler, this brings me to the idea of how the role of *technology* in the realm of memory and the human is undoubtedly relational—and by ‘relational’ I mean the numerous modes and networks (language, objects, social practices) by which humans and/or things are associated and reliant upon one another in complex, entangled ways. Temporal and spatial aspects web across language and symbolic action, which overlap with architecture, institutions, systems, technologies, ideas, art, things, affect, effect, humans and culture in ways that render memory into new, revised forms—forms that deserve ongoing attention and analysis. As Geoffrey Bowker makes the case in *Memory Practices in the Sciences*, “Acts of committing to record

(such as writing a scientific paper) do not occur in isolation; they are embedded within a range of practices (technical, formal, social)<sup>162</sup> that allow articulations of the past to be carried forward into the future. Thus there is not a singular trace from which to begin, but we have to start somewhere. I choose to start with the interstellar archive.

In Chapter II, I address the frontier as a motivating factor for what the NASA team deemed worthy of memorializing in the archive, what they ignore or deem unfit, what voices are present or missing, and how the frontier metaphor operates to advance the act of commemorating their rhetorical work.<sup>163</sup> However, the influence of the frontier metaphor is only the A-side of the records. Here I turn to the B-side, because based on their writings in *Murmurs*, the NASA curation team seemed cognizant of the notion that these gilded records remember and somehow *speak* in a certain way—to and for—humans on Earth.

### **Technically Speaking: Listening to Posthuman Murmurs**

In this section, the technological articulation of memory will be vital to the analysis because, as Stiegler claims, technology is “humanity’s very destiny: the two are bound together...one cannot exist without the other...the elements are co-constituents.”<sup>164</sup> Moreover, in continuance with Stiegler’s notion that “humans are prosthetic beings,”<sup>165</sup> this commemorative technology, as it expands into frontiers of space via the Voyager probes, can be understood as a technical expansion of humanity—indeed, a prosthetic extension of “the best of ourselves.” This memory prosthetic, I argue, is important because it is a mode of a nascent space colonialism that will continue to evolve with time and technological advancement. If so, it is important to critically

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<sup>162</sup> Geoffrey Bowker, *Memory Practices in the Sciences*, 7.

<sup>163</sup> Lester Olson et al., “Section II: Remembering and Memorializing,” 100.

<sup>164</sup> Bernard Stiegler, *Technics and Time, 2: Disorientation*, 2.

<sup>165</sup> *Ibid.*

‘listen’ to the voice in order to rhetorically attend to the ways in which such an ambitious memory prosthetic is able to remember and speak on our behalf.<sup>166</sup>

To do so, this work will be theoretically buttressed by tenets of posthumanism. As Cary Wolfe outlines, (one of the facets of) posthumanism is “a historical moment in which the decentering of the human by its imbrication in technical, medical, informatics, and economic networks is increasingly impossible to ignore,”<sup>167</sup> and thus requires rhetorical scholars to “participate in—and find a mode of thought adequate to—processes which can never be entirely reduced to patterns or standards, codes or information.”<sup>168</sup> This is not to say that the human is outright denied, but instead that it is not the only aspect worthy of tracing in a study. There are other things, worlds, networks tied up, tangled, and bound with the human that merit acknowledgement, too.

Such an emergent, theoretical ‘decentering’ is immense and complicated in its scholarly (and certainly daily) uptake, which is to say: the work of this thesis cannot, and does not, encapsulate the Golden Records in an entirely posthumanistic framework. In fact, posthumanism resists that very attempt (see Wolfe’s comment on engaging with processes that *cannot* be totalized or reduced to normative means). Nevertheless, despite the limitations, at the very least I aim to examine the curation team’s various, telling assertions that the Voyager archive somehow *speaks*—that the material medium itself is commemorative, cosmic discourse speaking on behalf of Earth. Yet, if it speaks, it surely does not speak with a voice in any traditional, humanistic sense. Thus I theorize that the Golden Records ‘speak’ with what Lisa Mazzei calls a “Voice without Organs,” a posthuman idea she takes up by theoretically appropriating Deleuze and Guattari’s idea of the Body without Organs (BwO). To do so, I am guided by comments from

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<sup>166</sup> Perhaps this concern adds more rhetorical weight to the New Horizons question: “Are you on board?”

<sup>167</sup> Cary Wolfe, *What Is Posthumanism?* (Minneapolis: University of Minnesota Press, 2010), xv.

<sup>168</sup> *Ibid.*, xviii



the curation team in *Murmurs* that help shape the idea that these commemorative technologies have voice capable of discourse.

At the start of the *Murmurs* text, Carl Sagan recounts the various people—often public figures like sci-fi writers, philosophers, and scientists—who offered insight and advice about what to include on the interstellar records. At one point he genially refers to a radio disc jockey who broadcast a public plea on the radio, beseeching the NASA team to include music on the stellar message. The DJ asked, “You would give them [aliens] our minds, will you give them our soul?”<sup>169</sup> Our “soul” is used singularly here, denoting that sound and music is the collective soul of humanity. Sagan, upon hearing this particular song request, was pleased to announce that the team was already planning on “using sound and music to communicate human feeling and emotion.”<sup>170</sup> The reasoning behind sending music was taken up because, according to Sagan,

...there is much more to human beings than perceiving and thinking. We are feeling creatures. However, our emotional life is more difficult to communicate, particularly to beings of very different biological make-up. Music, it seemed to me, was at least a creditable attempt to convey human emotions. Perhaps a sufficiently advanced civilization would have made an inventory of the music of species on many planets and, by comparing our music with such a library, might be able to deduce a great deal about us.<sup>171</sup>

Quite literally, Sagan and the team hope that the sounds encoded on the record, particularly the music, will speak for us—and by “us,” again, he broadly gestures to the entire planet. By his reasoning, he postulates that humans might not possibly be the only beings who archive, who have libraries, and who use such external archives from which to extract memory and meaning. The material archive itself, as well as its contents, is assumed to have the capacity to

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<sup>169</sup> Carl Sagan et al., *Murmurs of Earth*, 35.

<sup>170</sup> *Ibid.*, 13

<sup>171</sup> Carl Sagan et al., *Murmurs of Earth*, 13.

communicate. This notion is explicitly emphasized by Timothy Ferris when he writes about what the record, as a material artifact, says to its audience:

We don't know whether human music will mean anything to nonhuman intelligences on other planets. But any creature who comes across Voyager and recognizes the record as an artifact can realize that it was dispatched with no hope of return. That *may speak more clearly* than music [emphasis added]. The record says: However primitive we seem, however crude this spacecraft, we knew enough to envision ourselves citizens of the cosmos. It says: However small we were, something in us was large enough to want to reach out to discoverers unknown, in times when we shall have perished or have changed beyond recognition. It says: Whoever and whatever you are, we too once lived in this house of stars, and we thought of you.

It speaks clearly. All throughout the pages of *Murmurs* it becomes clear that the various NASA team members openly and forthrightly relied upon the records to speak, remember, and communicate for us. In fact, this underlying attitude of the message-as-prosthetic becomes even clearer when Sagan asks philosopher Stephen Toulmin for insight about what to include on the record. Unlike other contributors, Toulmin moved away from the centralization of music by emphasizing that the scientists should include some sort of overt depictions of human cooperation and community:

Toulmin warned against the tendency in all such time-capsule messages to represent human beings as individuals without stressing the importance of community for the human species. He urged that we include some representation of human beings in communities, cooperating together. Several of the scientists suggested that since the spacecraft itself contains so much information on our technology and physical sciences, at least implicitly, the explicit message ought to be oriented in some other direction.<sup>172</sup>

Toulmin's warning was denied by the scientists, who inadvertently seem to make the case that the assemblage of the material medium itself—the spacecraft and its technologies—already *implies* human reliance upon community and cooperation. “Surely,” they might have said, “in terms of cooperation, it speaks for itself.” And, perhaps, that is where the analysis ends, because

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<sup>172</sup> Ibid., 11

as a common idiomatic phrase, to claim that something “speaks for itself” typically denotes the idea that something’s implications are so clear that there is no need for additional evidence or comment. It speaks for itself. Likewise, there is another similar idiomatic phrase used almost to the point of cliché: actions speak louder than words, a saying that implies that what one *does* is more ‘telling’ than what one merely says. Actions speak. At first, such commonplace phrasings are easy to gloss over in the context of an interstellar space archive. The Voyager speaks for itself. Its action as a technologic, cosmic undertaking speaks loud enough. However, even such phrases fail to respond to the reasonable question: beyond the colloquial setup, *how* might X actually speak for itself?

Thus, for the remainder of this chapter I maintain that the records ‘speaking’ is not, as I argue, a metaphorical or anthropomorphic assertion—instead, I situate it within the a posthuman sense of voice in order to examine how such a notion might be conceivable, and what it could mean for space colonization. As found across the *Murmurs* text, even the members of the curation team seem to be aware of that the Voyager Golden Records do speak for themselves—as well as for us. One of the most prominent examples of this in the text occurs when Carl Sagan and Ann Druyan recount how, upon researching different species of flower to include on the record, they accidentally came across information about the tradition of Javanese gamelan music:

There is, it is said, a kind of spirit music in the world, continuously but silently playing. When a gamelan orchestra performs, it is merely making audible the present movement of the music of eternity. Perhaps all of the Voyager record can be viewed similarly—as a local and momentary *expression of cosmic discourse*, an exchange of greetings and music and information among diverse galactic groups that has been in progress for billions of years [emphasis added].<sup>173</sup>

This stirring sense of making such silence *audible* influenced the team to approach the record itself as a form of cosmic discourse in order to, indeed, make the silent audible. In this case,

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<sup>173</sup> Carl Sagan et al., *Murmurs of Earth*, 42.

however, they hope to make audible the silence of a technological material, to render it capable of expression and discourse.<sup>174</sup> In a traditional sense, however, discourse is typically denoted as some sort of human interchange of ideas (via conversation, writing, etc.). However, in this case, the interlocutor is a material, technological archive of exteriorized memories flying through space. In so doing, it speaks for itself, and for us. If we entertain this possibility to be true, then what is it saying, and how?

### **Voice Without Organs**

As Sagan explained, the team relied on sound and music to communicate human feeling and emotion—to express and commemorate the “best” of us via the audio spectrum. Thus the majority of the Golden Record contains encoded recordings: curated selections of music, languages (as spoken greetings), images, and sounds of Earth, all of which are collectively referred to as “murmurs” of Earth (as revealed by the title of the primary text that guides this study). A murmur is typically understood as a human-centric sound, denoted as being “a soft, indistinct sound made by a person or group of people speaking quietly or at a distance.”<sup>175</sup> The Voyager and its records not only carry a murmur—I argue that they *are* a murmur of Earth in space, speaking quietly from a long distance. The medium, as Marshall McLuhan theorized, *is* the message. Linda Salzman Sagan indirectly emphasizes McLuhan’s idea, perhaps unwittingly, when she contemplates the archive in her *Murmurs* chapter:

The Voyager spacecraft hurtling through space as I write these words resembles a glistening cocoon carrying on it a gold record, a gift to all our intelligent counterparts inhabiting the universe...a celebration of the human spirit, emphasizing our

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<sup>174</sup> Granted, the curated content of the record itself *makes silent* the many voices and sounds of Earth by denying them a place in the archive; indeed, the record only seeks to preserve the best of ourselves, our memories, our murmurs. I keep this in mind while also focusing on the idea that, according to the team, the Voyager record is cosmic discourse.

<sup>175</sup> Definition of ‘murmur’ accessed: <https://en.oxforddictionaries.com/definition/us/MURMUR>

gregariousness, our joy in being the social creatures we are, and expressing our desire to be thought of *as eloquent in this, our first speaking engagement in the universe*. We are saying that language is important here, and that we would welcome—indeed, relish—a *dialogue* with another interlocutory civilization elsewhere in the cosmos [emphasis added].”<sup>176</sup>

She makes clear that the Voyager and its Golden Records are, in themselves, to be understood as a speaking engagement in the cosmos. It is the welcome impetus of dialogue—but how? For Ann Druyan, as mentioned in the previous *Murmurs* excerpt, she also articulates the records as a form of cosmic discourse. Then, for the NASA scientists, they decide that Toulmin’s idea of depicting ‘community’ can be cast aside because the technological material speaks for itself by communicating the sense of collective cooperation. If it *is* cosmic discourse, designated as “our first speaking engagement” in the universe, then such commemorative discourse is rendered possible only via its networked, material, technological extension of encoded memories of terrestrial artifacts. For how else can this be our first ‘speaking’ engagement if there is no way to speak, no astronaut onboard to state the message using breath, air, lungs, windpipe, organs? In short, how are we to take seriously the team’s repeated idea that a material artifact like the Golden Records could somehow engage in cosmic discourse?

In a posthuman turn, I argue that they are able to ‘speak’ with what Lisa Mazzei theorizes as “Voice without Organs”—a theoretical appropriation of Deleuze and Guattari’s notion of the Body without Organs (BwO), an assemblage which they use to endeavor thinking without a subject in order to confront our habitual reliance on entangled objects and material representations to understand and explain.<sup>177</sup> “In other words,” writes Mazzei, “there is no longer the bounded organism, the body of the humanist subject, but a post-humanist body that exists as

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<sup>176</sup> Carl Sagan et al., *Murmurs of Earth*, 124.

<sup>177</sup> Lisa A. Mazzei, “Voice Without a Subject” in *Cultural Studies ↔ Critical Methodologies* 16, no. 2 (2016 online), 153.

a complex network of human and non-human forces.”<sup>178</sup> Using their concept, applied to voice on the BwO, Mazzei attempts to critically reimagine ‘voice’ as starting with an ontological unit no longer that of an individual human being. That is to say, voice emanates not from a singular subject—as it is traditionally understood—but is instead produced through an assemblage of humans, things, desires, materials, intensities, forces, hierarchies, etcetera. Such voice, no longer that of “the bounded organism, no longer of *the* or *a* body, is what...enables one to think voice differently.”<sup>179</sup> She goes on to claim that theorizing voice in such a way is to think of it as a “surface for the recording of the entire process of production of voice, rather than a process that attempts to record and translate that experience in the form of something singular and distinct.”<sup>180</sup> Voice, then, is the medium of its own ongoing production.

In her work, Mazzei uses this concept to advance new ideas for posthuman inquiry and qualitative research, wherein voice does not belong solely to the human—instead, VwO is a “knot of forces between the material and semiotic and the time of the [present] and the time of the past... an assemblage, a complex network of human and non-human agents that exceeds the traditional notion of the ‘individual,’ the ‘body,’ the ‘person.’”<sup>181</sup> As a Deleuzian notion, voice is always becoming, as everything is becoming—all matter, human, more-than human—all matter is becoming together. Thus the VwO, and by extension, the Golden Records as an exemplar of such a temporally complex assemblage, is bound “not to [articulating] a memory that attempts to preserve the past, but duration, “through which all presents pass.”<sup>182</sup> In its entanglement with humanity on Earth, motives and materials, public interest, capital, scientists, speed, gravitational forces, time, space dust, and so on, Golden Records continue to materialize our duration.

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<sup>178</sup> Ibid.

<sup>179</sup> Ibid.

<sup>180</sup> Ibid., 154

<sup>181</sup> Ibid., 155

<sup>182</sup> Deleuze, as cited by Lisa A. Mazzei in “Voice Without a Subject,” 157.

With that in mind, I maintain that the records, as a ‘voice’ speaking across the cosmos via VwO, functions in complex ways as a memory prosthesis, which, as Stiegler clarifies, “does not supplement something, does not replace what would have been there before it and would have been lost: it is *added*.”<sup>183</sup> The prosthesis of Voyager therefore is not a mere extension of the human; it is “the constitution of this body *qua* ‘human’ (the quotation marks belong to the constitution). It is not a “means” for the human but its end...“the end of the human.”<sup>184</sup>

Here I must pause lest I lose sight of one of the elements which I argue helps give rise to Voice emanating from the records: the prosthetic medium, the material itself. For theoretical studies like this one, Tom Ingold warns that “such studies take as their starting point a world of objects that has, as it were, already crystallized out from the fluxes of materials and their transformations. At this point materials appear to vanish, swallowed up by the very objects to which they have given birth. That is why we commonly describe materials as ‘raw’ but never ‘cooked’ – for by the time they have congealed into objects they have already disappeared.”<sup>185</sup> The materials, of course, create the object of the Golden Records and, from the perspective of posthumanism, they remain definitely lively and in flux. Indeed, for Ingold, focusing on the material of an object directs “our attention to what our predecessors already knew when they first coined the term ‘material’ by extension from the Latin *mater* (‘mother’). The term ‘has a complex history involving feminine-gender Latin and Greek words for wood...which is or has been *alive*.”<sup>186</sup> This awareness of material as ‘mother,’ as lively ‘matter,’ briefly appears in a subtle, unexpected way in *Murmurs* during a description of the Golden Record’s technical, material composition:

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<sup>183</sup> Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, 153.

<sup>184</sup> *Ibid.*

<sup>185</sup> Tom Ingold, *Being Alive: Essays on Movement, Knowledge, and Description*. (London: Routledge, 2011), 28.

<sup>186</sup> Tom Ingold, *Being Alive*, 26.

The pressing of an ordinary vinyl twelve-inch long-playing record is made from a mold, which in turn is made from a copper or nickel positive master called a ‘mother.’ Since the technology for such an engraving was in hand, it seemed ideal to *send a mother to the stars*. Its resistance to erosion in space would be considerably greater than an ordinary vinyl record’s. Because nickel is ferromagnetic, a nickel mother might interfere with the delicate magnetic field detection experiments of Voyager, so a copper mother was settled upon [emphasis added].<sup>187</sup>

They sent such a ‘mother to the stars’ because it would keep our memories for safe and, in so doing, protect ‘us’ as we extend across unfathomable lengths of time and space. It keeps us alive, as Ann Druyan observed:

We have no way of knowing how much of this beautiful planet will have been obliterated long before Voyager ceases its wandering; how many of the voices celebrated on this record will have been silenced forever by our carelessness or merely by time. Voyager moves among the stars, bearing its cargo of echoes and images, and, in the logic of such distances, keeps us alive.<sup>188</sup>

How does it keep us alive? According to Ingold, “Far from being the inanimate stuff typically envisioned by modern thought, materials in this original sense are the active constituents of a world-in-formation. Wherever life is going on, they are relentlessly on the move—flowing, scraping, mixing and mutating.”<sup>189</sup> The material of the Golden Records—the copper (and, toward the end of the project, gold)—is thus actively caught up in the complex networks and interchange among its substance, its material, its message, its social configuration, its “soul” in the form of our sounds of Earth, its function as cosmic discourse, its voice. The voice of the archive, as a prosthetic extension of us, memorialize and safeguard “the best of ourselves.”

As a memory prosthetic, the Voyager records are not a mere extension of the human, as based on Stielger; rather they are “the constitution of this body *qua* ‘human’...[such prosthesis]

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<sup>187</sup> Carl Sagan et al., *Murmurs of Earth*, 14.

<sup>188</sup> *Ibid.*, 160

<sup>189</sup> Tom Ingold, *Being Alive*, 28.



is not a “means” for the human but its end...“the end of the human.”<sup>190</sup> Thus the Voyager and its records *keep us alive* by extension, by projecting us outward with its/our echoes, its/our murmurs, its/our Voice without Organs as a complex network of human and non-human forces, speaking quietly into the cosmos. It speaks the existence of humans of Earth being bound up in technological prosthetic, bound in networks we have that, in turn, have us. The NASA team commemorates such an idea on the sounds of Earth essay, as encoded on the medium. The audio essay speaks to the evolution of human’s increasing relationship with externalized, technological prosthetics, as seen in a *Murmurs* chapter titled “The Sounds of Earth” by Ann Druyan. In it, she explains how she and the team purposefully arranged the audio essay chronologically to best commemorate the evolution of life on earth “from the geological through the biological into the technological.”<sup>191</sup> Based on the chapter, and the online archive accessible at [goldenrecord.org](http://goldenrecord.org), the Sounds of Earth essay is encoded on the record as follows:

1. Music of the Spheres (audible frequencies of the planets)
2. Volcanoes, Earthquakes, Thunder (onset of atmosphere, electricity, life)
3. Mud Pots (geological gurgling, simmering life)
4. Wind, Rain, Surf (with special emphasis on ocean waves)
5. Crickets, Frogs (debut of *vociferous* life on Earth)
6. Birds, Hyena, Elephant (chorus of creatures)
7. Chimpanzee (voice of the primate, screeching “its mad announcement of a new consciousness”)
8. Wild Dog (lonely baying that reverberates with danger and uncertainty of our beginnings)
9. Footsteps, Heartbeat, Laughter (humans make their first appearance)
10. Fire and Speech (we use fire to alter our environment; the hearth was one of the sites of language and culture)

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<sup>190</sup> Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, 153.

<sup>191</sup> Carl Sagan et al., *Murmurs of Earth*, 153.

11. The First Tools (our upright posture left our hands free for manipulating the environment)
  - a. Druyan remarks that, after this point, almost every sound that follows it is the result of human activity
12. Tame Dog (bark is not menacing now; animals have been domesticated)
13. Herding Sheep, Blacksmith Shop, Sawing, Tractor and Riveter (agriculture, construction)
14. Morse Code
15. Ships, Horse and Cart, Train, Truck, Bus, Automobile, F-111 Flyby, Saturn 5 Lift-Off
16. Kiss (heterosexual only)
17. Mother and Child
18. Life Signs (EEG patterns of Ann Druyan; sent in case aliens could ‘read minds’)
19. Pulsar

Those are the Sounds of Earth archived on the Golden Record. There are, of course, no sounds of death on a battlefield, no grenades, no sounds of pain or sadness, no weaponry, no explosions, no sirens or alarms. These murmurs in the cosmos are meant to be idealistic, an enthusiastic retelling of our (seemingly) superior engagement to command external supplement in order to expand and evolve (e.g., fire to speech to sawing to ships to horse and cart to train, and on it goes, etc.). In their audio essay of ‘First Tools’ they aim to emphasize how a human’s upright posture left the hands free for manipulating the environment—but they fail to acknowledge how we are manipulated by the environment, how such hands (and bodies and minds and societies) evolve in ongoing response to the external media and technologies of existence. According to Stiegler, such an idea “marks a different relationship of space and time, a different synthesis, and an entirely new question of intuition, leaving the “body proper” behind.”<sup>192</sup>

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<sup>192</sup> Bernard Stiegler, *Technics and Time, 2: Disorientation*, 98.

The spacecraft does leave a sense of ‘the body proper’ behind but, as a larger material entity itself, still enacts human’s outward expansion and evolution as it flies ten miles per second through space-time while still remaining networked and deeply connected to its terrestrial roots. In an unfathomable way, we are still attached to it via weak radio signals from it, emanating to us through billions of miles of space. Thus the Voyager speaks the assemblage not of our past, but of our duration, through which all presents pass. The record is, as Mazzei explains, “a voice of duration; as a folding, enfolding, and refolding,” ...a unity of past, present, and future that refuses an erasure of life.”<sup>193</sup> The Voyager records refuse erasure of life by instead preserving it as it continues to fold, enfold, refold us. The human is archived and encoded in the medium. Another team member, Timothy Ferris, emphasizes this point when he writes:

But any creature who comes across Voyager and recognizes the record as an artifact can realize that it was dispatched with no hope of return. That gesture *may speak more clearly* than music. The record says: However primitive we seem, however crude this spacecraft, we knew enough to envision ourselves citizens of the cosmos. It says: However small we were, something in us was large enough to want to reach out to discoverers unknown, in times when we shall have perished or have changed beyond recognition. It says: Whoever and whatever you are, we too once lived in this house of stars, and we thought of you.

Overall it was made clear early on in *Murmurs* that Sagan and the curation team hope that future extraterrestrials might ‘be able to deduce a great deal about us’ based on what I theorize as the VwO of the record (via its untraceable networks in which it continues to be deeply entangled). Such a posthuman Voice, in Mazzei’s theory, can never really be “traced to a particular instant or place, nor does this voice ‘belong’ to a subject. The connections and orderings resist a ‘rigid tracking’”<sup>194</sup> as they are instead bound up in technology, memory, material, space, time, history, politic, hierarchy, thing, human, network, machine. These are hence the emergent, technological regimes of commemorative practices being enacted via

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<sup>193</sup> Lisa Mazzei, “Voice Without a Subject,” 157.

<sup>194</sup> *Ibid.*, 158

scientists—and their frontier objects—sent out on behalf of (the best of) us. Scholars already attend to how our memory is situated in *place*, materially rendered, or digitally archived, but I now see a need for unification of these, to acknowledge the posthuman relations across the boundaries that instantiate how memory can occur, and how things remember. For now, regarding the objects at hand, these Golden Records as ‘our first speaking engagements in the universe’ via cosmic discourse, are done through material media and its VwO—and it continues to be done, too, as we endeavor to send out more technological, commemorative artifacts into space as a way to send ‘pieces of ourselves’ into the frontier. The question still looms: what is at stake upon acknowledging the onset of such prosthetic memory practices?

As I review such a concern in the final chapter, I maintain that these scientific practices are a mode of a nascent space colonization—enacted through posthuman, technological extensions of ‘us,’ particularly via commemorative objects as they spread into uncharted frontiers—that will only progress with time and technological advancement into deep space and even deeper futures. If humans are indeed set to expand beyond the confines of Earth, then we need to at least remain open to new ways of understanding how colonization is narrated—even voiced—on an extraterrestrial scale.

## CHAPTER IV

## CONCLUSION: OLD IDEAS ON NEW HORIZONS

“The visions we offer our children shape the future. It *matters* what those visions are. Often they become self-fulfilling prophecies. Dreams are maps.”

—Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space*

On March 18, 2017, while working on research for this analysis, I was notified by a news update that the celebrated rock n’ roll performer Chuck Berry had passed away. Upon seeing reports about his death, I noticed several news segments and online articles informing the viewing public to be rest assured that, despite the sadness of his passing, his voice still “lives on in space”<sup>195</sup> and that his legacy and his music “will live on for an eternity.”<sup>196</sup> Indeed, one journalist emphasized how his death “elicited tributes from around the world, but nothing quite as enduring as the memorial launched by NASA.”<sup>197</sup> This ‘enduring memorial’ refers to the fact that Berry’s 1958 hit “Johnny B. Goode” was one of the twenty-seven musical tracks encoded onto the Voyager Golden Records back in 1977. Writers and news outlets broadcast the idea that, by being on board Voyager, he lives on even after death. In fact, while keeping in mind his everlasting voice as it journeys through space onboard Voyager, many of the articles and televised news reports wistfully ended their report with the lyric from his song: *Go, Johnny, go.*

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<sup>195</sup> “Chuck Berry Immortalized On Voyager Space Mission.” *National Public Radio*. March 20, 2017. Transcription of broadcast, as heard on All Things Considered, can be accessed at:

<http://www.npr.org/2017/03/20/520862763/chuck-berry-immortalized-on-voyager-mission-in-space>

<sup>196</sup> Hanneke Weitering, “Chuck Berry’s Music Is Traveling Through Interstellar Space” in *Space.com*. March 20, 2017. Accessed at: <http://www.space.com/36136-chuck-berry-music-in-interstellar-space.html>

<sup>197</sup> Nancy Szokan, “Chuck Berry’s Legacy Continues Into Deep Space Aboard Voyager Spacecraft” in *Orlando Sentinel*. March 28, 2017. Accessed at: <http://www.orlandosentinel.com/news/space/go-for-launch/os-chuck-berry-s-legacy-continues-into-deep-space-aboard-voyager-spacecraft-20170328-story.html>

And so Johnny goes; outward and onward, Barry's archived voice extends into the vast perpetuity of our universe.

Back on Earth, almost forty years after the launch of Voyager, this onset of public dialogue regarding the Golden Records' capacity for immortality gestures to human's increasing recognition of how a technological, commemorative artifact illustrates that humans are, in fact, bound up in our technologies, our collective prosthetics—it *can* carry pieces of us, our memories, voices, encoded lives and legacies. It is understood that we are on board—just not in the customary sense of bodily, spatial occupation. This, I think, is something the NASA team sensed back in the late seventies. Now, as time goes on, memory practices in space science are only becoming more advanced in their material and technological engineering as we extend “ourselves” outward into these new, unclaimed territories. As we venture into space, these new practices undoubtedly require new approaches of rhetorical evaluation and approach, which I discuss below.

So far in this study I have provided a brief glimpse of how space scientists remember and speak for us, as well as how an *artifact* remembers and speaks for us—but for this concluding chapter, I hope to further address a lingering question: why? I answered this question, in part, in Chapter II by explaining how space scientists seek to explore and expand based on rhetorical motivation of the frontier trope in science, thereby incidentally creating new practices of technological commemoration in the process. Later, in Chapter III, I theorize how the technological medium itself speaks and remembers for us—not just the scientists—via Voice without Organs. Yet, despite outlining the rhetorical power of the frontier trope and its new memory practices, the question remains: Why send out anything? Why launch a technological archive of “the best of ourselves” into “the frontier” in the hopes that it reaches some

extraterrestrial civilization? The media's discussion surrounding Chuck Barry's death (and perpetual life) dances around the answer to this question by subtly punctuating the deeper motive behind why NASA wanted to send such a commemorative archive in the first place back in 1977: the idea of "living on in space" gestures to a powerful incentive for human survival, for future salvation. Indeed, as Ann Druyan pointed out, the record itself 'keeps us alive' as it drifts through the cosmos. As it turns out, this theme of survival and salvation interweaves across both research questions, as the following sections aim to show.

### **A Fork in the Frontier**

Upon seeing Carl Sagan's comment in *Murmurs* that, "It is clear, to paraphrase Isaac Newton, that in our spacecraft exploration of the inner solar system we have been playing on the seashore, when the vast ocean of the solar system lay all undiscovered before us,"<sup>198</sup> I knew that my study needed to be framed by the powerful undercurrent of the frontier trope. Thus my first research question asked: To what extent does the 'frontier of science' metaphor underpin the team's curation processes and their notion of uncertain Other audiences in deep futures? I used this question as a guiding framework to help critically trace the frontier metaphor operating through the NASA team's curation process, as well as in the material artifact, of the Voyager Golden Record. It became apparent that the metaphor certainly has the capacity to incite arrogant and elitist scientific undertakings in the Western world and beyond (i.e., a small group of privileged white scientists are in charge of archiving "the best of ourselves" for an assumed audience of aliens). However, although such hegemonic aspects are indisputably powerful and present across the Golden Records, as illustrated in previous chapters, I found that in the case of the Golden Records there is a notable turn *away* from a sense of overt dominance and arrogance; instead,

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<sup>198</sup> Carl Sagan et al., *Murmurs of Earth*, 222.

they turn toward *despondency* about existence. That is to say, rather than the technological archive being enacted through attitudes of self-congratulation and overconfidence, the exigence of the frontier was, in part, born from a desperate need for human survival and salvation. Indeed, Ceccarelli even discusses how the earliest use of the frontier of science metaphor in American society “established science as a national *salvation at a time of anxiety* about the future [emphasis added],”<sup>199</sup> particularly when resources and opportunities for geographic and economic expansion were depleted or limited in an ever-shrinking world. In providing an overview of how the metaphor gained traction in the minds of Americans during the Great Depression, Ceccarelli further explains how scientific endeavors and grand projects were needed in that desperate era in which the public was incredibly worried about their future. If we trace this reasoning back along the lines of the Voyager mission in 1977, the question quickly surfaces: what was the need for a sense of salvation? What might have provided a sense of anxiety about the future? In historical context, the answer is glaring: the Cold War.

As discussed in the introduction, during the Cold War the Soviet Union and the United States were armed with a deadly arsenal of nuclear weapons; each country was fully prepped and ready to drop bombs on the other and ultimately usher in an atomic apocalypse. With this in mind, it is sobering to note that the *same* plutonium nuclear power and technologies fueling space probes to fly beyond the solar system originates from the same nuclear energy that was set to destroy global civilization on Earth. Perhaps the Voyager and its records, then, were not created only as means to achieve some superficial space supremacy for the U.S. during the Cold War: rather, it was a hopeful measure that *we survive it* by technological means, should lethal tensions take a turn for the worse. This attitude of hope for survival becomes apparent in

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<sup>199</sup> Ceccarelli, *On the Frontier of Science*, 141.



President Jimmy Carter's letter that was included on the Golden Record. On June 16, 1977, he wrote:

This is a present from a small distant world, a token of our sounds, our science, our images, our music, our thoughts and our feelings. We are attempting to survive our time so we may live into yours. We hope someday, having solved the problems we face, to join a community of intergalactic civilizations. This record represents our hope and our determination, and our good will in a vast and awesome universe.<sup>200</sup>

According to the president's letter, they were attempting to *survive* their time, followed immediately by hoping to solve the 'problems we face,' a phrase that obliquely underscores all the terrible things the team sought to omit from the record. Thus, in considering NASA team's historical milieu wrought with threat of war and nuclear holocaust, archiving only the "best of ourselves" on the record could feasibly be seen as an unwitting act of seeking forgiveness for human depravities—such occlusion, perhaps, was for the benefit of the Earth-bound audience, as if to say: These human vices of violence, war, suffering, hatred, destruction, and abuse of power are despicable, and need not to live on forever (even if, through such avoidance, they partake in some violence by silencing and undermining those who experienced it). Indeed, as illustrated by the use of nuclear power (i.e., nuclear power used for space exploration versus atomic weapons), the human entanglement with science and technology is often a sort of double-edged sword. Even today, for instance, I would argue that the twenty-first century exigence for exploration on the "frontier" of space stems from growing panic and anxiety about environmental concerns like overpopulation and global climate change (indeed, a dangerous, all-consuming problem created, in large part, by science and technologies, like vehicles, factories, agriculture, power plants, etc.). With that in mind, it is worth pointing out how, just as science fiction influenced and reflected public and scientific commentary during the mid-century, it continues to do so today—often in

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<sup>200</sup> Carl Sagan et al., *Murmurs of Earth*, 28.

the form of film. For example, in 2013, the sci-fi movie *Elysium* was released starring Matt Damon, which takes place in year 2154, a time when Earth is overpopulated, contaminated, and toxic. People living on this decaying Earth live in severe poverty, on the brink of starvation, and with scarce technology or medical care. However, the rich and powerful escaped Earth to live on Elysium, a utopian space habitat orbiting Earth.<sup>201</sup> In 2014, *Interstellar* is released, another sci-fi movie set in a dystopian future wherein the Earth's crops are failing due to climate change and humanity is desperately struggling to survive ecological end-times. Broadly, the plot follows a group of astronauts who journey through a wormhole in search of a new home for humanity, since Earth is far beyond repair.<sup>202</sup> In the film, the spacecraft that travels through a wormhole is aptly named Endurance. The following year, in 2015, *The Martian* was released, a movie premised on one man's lone survival on a Martian colony established by NASA. There are more examples, but the overall point is that numerous space exploration movies are being released, and the concept of human survival and endurance becomes the main point around which their plots pivot. Of course, these post-apocalyptic movies broadly serve as entertainment to rake in money at big box offices, but I find that they also mirror the public's growing trepidation about humanity's survival on this planet (which is certainly reinforced as global temperatures increase each year). The answer to such a global, apocalyptic catastrophe, according to recent popular films as well as recent Western space endeavors, is that we must leave this world and colonize new ones. Even the two promotional taglines for the *Interstellar* movie promoted the idea that "Mankind was born on Earth. It was never meant to die here," as well as "The end of Earth will not be the end of us."<sup>203</sup>

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<sup>201</sup> For a brief synopsis of the film *Elysium*: [https://en.wikipedia.org/wiki/Elysium\\_\(film\)](https://en.wikipedia.org/wiki/Elysium_(film))

<sup>202</sup> For more on the synopsis of *Interstellar*: <http://www.interstellarmovie.net/synopsis.php>

<sup>203</sup> *Interstellar* movie taglines: <http://www.imdb.com/title/tt0816692/taglines>

It is possible that this fear of ecological apocalypse quietly underpins the massive public support for crowdsourcing and sending digital archives of “us” to the New Horizons probe—the fifth and most recent probe to ever enter interstellar space (after Pioneer 10 and 11, and Voyager 1 and 2). According to a National Geographic interview with Jon Lomberg, one of the curators of the gilded records, the New Horizons message “will be very different from the one [they] designed with Sagan almost 40 years ago.”<sup>204</sup> Lomberg acknowledged that the Golden Record was created by “an elite cadre of people, whereas the digital age affords the New Horizons message to be put together by as many people on Earth as choose to participate. . . . It was very presumptuous of Carl Sagan and the rest of us to speak for Earth, but at the time it was either do it that way or don’t do it at all.”<sup>205</sup> In another online article, under a section titled “The Voice of the Crowd,” the writer outlines how many people from around the world “will be able to submit their images and vote on those that should be included in the final message. Lomberg and others will exercise editorial control to ensure that no inappropriate materials make the cut, and NASA will make the final call.”<sup>206</sup> Despite this more democratic participation of the commemorative archive, especially as compared to the Golden Records, the *purpose* of the New Horizons message is the same as the records: “to carry a message intended for any alien life-form that comes across it in the far future.”<sup>207</sup>

Once again, it is clear that space scientists lead the way (or, perhaps, ‘pioneer?’) toward engaging in conversation not only with humans, but to unknown others in space as well: to future

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<sup>204</sup> Rachel Hartigan Shea, “Global ‘Selfie’ to Be Beamed to Outer Space” in *National Geographic*. May 17, 2014. <http://news.nationalgeographic.com/news/2014/05/140517-global-selfie-message-new-horizons-space/>

<sup>205</sup> Ibid.

<sup>206</sup> Nola Taylor Redd. “Greetings from Earth! NASA Spacecraft to Carry Message for Aliens.” *Space.com*. June 23, 2014. <http://www.space.com/26332-nasa-new-horizons-one-earth-message.html>

<sup>207</sup> Ibid.

extraterrestrials. Why does this continue to be the goal? Why do the scientists seek to pin down this particular audience? In *Murmurs*, Jon Lomberg reflected on the difficulty of creating the archive for aliens, noting how “the late anthropologist and poet Loren Eiseley wrote perceptively that ‘one does not meet oneself until one catches the reflection from an eye other than human.’ These words echoed in my mind during this whole process.”<sup>208</sup> Is it that the extraterrestrial audience is simply a reflection of ourselves? Is it merely a hopeful assumption that we are not alone? Is it a projection that the other can somehow *save* us? Are we simply bored with the audiences we have exhausted on Earth? In a return to sci-fi film as a cultural mirror, Hugh Ruppensburg analyzes “the alien messiah” as a pervasive figure in recent Western science fiction film and—as I add—in recent communicative endeavors in space as well. According to Ruppensburg’s work,

A number of films produced in the last twenty years, and especially in the last decade, *look beyond the human for salvation*. They invoke a messiah figure, an overtly or covertly religious personage, whose numinous, supra-human qualities *offer solace and inspiration to a humanity* threatened by technology and the banality of modern life [emphasis added].<sup>209</sup>

Rather than the typified ‘little green men’ bent on colonizing Earth with laser explosions, extraterrestrials are beginning to be perceived as more hopeful, inspiring liberators during a time of anxiety and world-weariness. Still, this notion of an alien messiah sounds bleak according to Carl Sagan, who said that, “Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves.”<sup>210</sup> Still, this doubt implies why we might be looking for such a ‘hint’ in the first

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<sup>208</sup> Carl Sagan et al., *Murmurs of Earth*, 77.

<sup>209</sup> Hugh Ruppensburg, “The Alien Messiah in Recent Science Fiction Films” in *Journal of Popular Film and Television* 14, no. 4 (Winter, 1987): 160.

<sup>210</sup> Excerpt from *A Pale Blue Dot* by Carl Sagan on The Planetary Society website, accessible at <http://www.planetary.org/explore/space-topics/earth/pale-blue-dot.html>

place: help *could* come from elsewhere. Aliens could be of help because of their cultural imagined messianic identity “is an expression of transcendence,”<sup>211</sup> as particularly construed via the pervasive Western ideals of Christian mythos. Thus the archives sent into the stars seems to indicate a type of wish, a prayer—however, a technoscientific prayer that if the world can rely on an ultimate savior, it might be rooted in the possibility of an advanced, transcendent alien race. Even Sagan hoped throughout the course of writing *Murmurs* that the record would be intercepted and interpreted by a “sufficiently advanced civilization” far superior to ours.<sup>212</sup> Thus, as we expand and make assumptions about our uncertain future, we also expand and make assumptions about the precarious audience, too, who might be the ‘recipients’ of that future. We agree to a collective fantasy—of some supreme alien existence—based on the appeal to humanity’s ultimate survival and endurance. This might, in part, capture what it means to survive: to *be* remembered, somehow, somewhere, by technologies and transcendent beings better than our “best” selves.

Indeed, when the end of life on Earth seems imminent, scientists use the frontier to look *beyond the human* for salvation. This sense of posthuman salvation, however, is not only delivered via the prospect of alien beings there in unfathomable futures; indeed, it is also provided by our technological memory objects once cast out in space. As I review in the following section, these technologies speak and remember, as posthuman extensions of us, as they explore places the human body is not yet able to go.

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<sup>211</sup> Ruppensburg, “The Alien Messiah in Recent Science Fiction Films,” 160.

<sup>212</sup> Carl Sagan et al., *Murmurs of Earth*, 13.

### Speaking of Technology

Keeping the frontier trope in mind, my second research question asked: How are emergent, technological regimes of commemorative practices enacted via scientific objects? And how might these commemorative technologies remember and “speak” for, and to, *others* in complex ways? I asked this upon reading *Murmurs of Earth* in conjunction with Stiegler, whose theories indicate that human lives and endeavors and frontiers are never singularly our own; we are already bound up with/in our exteriorized technologies, to our outward-reaching prosthetics—a notion that certainly includes technically-mediated memory objects in space. Thus this second question framed a critical study meant to analyze the medium of the frontier archive itself as it speaks via the materialization of memory through a scientific technology.

In regards to the influence of such technology, Ruppensburg theorizes that often in sci-fi film, as well as in the Western world off-screen, “The human race is seen as a prisoner, in a sense, of its own technology, which has developed more rapidly than the ability of its inventors to cope with it.”<sup>213</sup> This idea aptly reflects Arendt’s discussion on space exploration and technology, which she used to illustrate how humans become slaves to the things we know how to do, but do not fully understand (i.e., advanced technological undertakings such as the *Sputnik* satellite). Indeed, as mentioned in the previous chapter, Arendt addresses how our quickly developing technological conquest of space leaves in its wake an *aporia* in language. With that, she argues that we will “forever be unable to understand, that is, to think and speak about the things which nevertheless we are able to do.”<sup>214</sup> Through the course of my study I realized that perhaps this *aporia* of language endures because humans do not yet concede to the idea that we are not the only ones involved in the speaking and the doing; the work is also redistributed and

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<sup>213</sup> Ruppensburg, “The Alien Messiah in Recent Science Fiction Films,” 164.

<sup>214</sup> *Ibid.*

extended to non-human, techno-scientific forms across space and time—this is a concept we do not typically know how to account for in day-to-day language. Generally, people do not yet know how to speak into voices and actions that aren't exclusively human. The first key is to realize that we are a part of a much larger whole for which we do not usually account (e.g., “I did laundry” is surely far more prevalent than something like, “the washing machine did laundry for me”; to say this would seem bizarre, even if it is true). Indeed, as David Crouch and Katarina Damjanov concluded, “[Arendt’s] crisis in language has at its core a problem of ontology: a failure to recognize that the words we use to describe ourselves are always, and have always been, bound up in our technological modes of being.”<sup>215</sup> Based on my work conducted in Chapter III, I found that the language used by the NASA curation team, as presented across several chapters in *Murmurs of Earth*, is approaching posthumanist attitudes in its orientation; that is to say, the team unwittingly began to account for this aporia of language by acknowledging how the material artifact itself is capable of speaking, remembering, commemorating. I ultimately claim that this is made possible through Voice without Organs, a posthuman theory proposed by Mazzei. Overall, the team’s commentary seems to embrace the idea that the records can speak and act for *and* with us, that “our technologies are inseparably bound up with the evolutionary continuum of the human, and the migration of our [technical] ways of life into outer space still further complicates articulation of our techno-logic condition.”<sup>216</sup> Without ever saying it outright, of course, the team’s descriptions of the record illustrate how the Voyager records are a prosthetic of the human.

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<sup>215</sup> David Crouch and Katarina Damjanov. “Extra-Planetary Digital Cultures” in *M/C Journal (Online)* 18, no. 5. Available at <http://journal.media-culture.org.au/index.php/mcjournal/article/view/1020>

<sup>216</sup> *Ibid.*

From there, if we can agree with Stiegler that “humans are prosthetic beings,”<sup>217</sup> then this commemorative technology, as it expands into outer space via the Voyager probes, could arguably be seen as a cyborg, technical extension of humanity—indeed, a complex, networked, technological extension of ourselves cast out in the wild, unexplored territories (‘frontier’) of space. From such a perspective, I maintain that it becomes increasingly important for rhetorical scholars to listen critically to these archive, to the rhetorical ways in which such a grand prosthetic seeks to speak, act, and explore on our behalf. Furthermore, this assertion of the Voyager records acting as a prosthetic of humanity has some key implications that I want to address.

First, this expansion of “us” (as motivated by the frontier trope and, incidentally, our salvation) enacts a technological memory prosthetic, as theorized by Stiegler, which is important for rhetorical scholars to critically analyze because it performs a technological practice of space colonialism that continues to evolve with time and scientific advancement. The practice enacts a prosthesis—via entangled objects like Voyager—that is not only an *extension* of the human; rather, it is “the constitution of this body *qua* ‘human’ . . . It is not a “means” for the human but its end . . . “the end of the human.”<sup>218</sup> Technological advancement is already, to varying degrees, colonial—particularly as it *colonizes us*, to the point that it becomes an extension of ourselves projected into uncharted lands, people, things. It is now impossible to expand and explore without relying upon, and being tangled up within, these complex technologies and instruments. The end of the human is how technological regimes of commemorative practices are enacted via scientific objects.

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<sup>217</sup> Ibid.

<sup>218</sup> Ibid.



For instance, the Mars rovers, the Juno space probe, the Voyager Golden Records, and all the various robots, satellites, and rockets that have launched into new worlds are all posthuman echoes of a more typified colonialism: a dominant culture—technologically extended—heads forth into a new territory that it ultimately aims to occupy. Certainly the motives for colonialism on Earth throughout history have been multilayered: economic expansion, social survival, religious freedom, acquiring new lands, exertion of hierarchical power, and/or the subjugation of a people or culture, to name only a few. Consistent across all these purposes, of course, is the act of occupying. In the context of this study, then, I want to suggest that sending technological extensions of ourselves to occupy space is an ongoing, scientific practice of colonialism that, although born out of an impetus for survival, has the capacity to change incentive over time. Even if done out of fear of apocalypse, we aim to occupy new worlds by complex means: with our technologies. This is a concern to keep in mind as scholars of rhetoric and culture because, as Linda Billings argues, it is “undoubtedly possible that space exploration could degenerate into the kinds of conquest and exploitation that characterized the West’s domination over what is now called the developing world. Thus, NASA and its partners in space should be vigilant in their efforts to avoid repeating past mistakes.”<sup>219</sup> These past ‘mistakes,’ of course, are a euphemism for violent Western expansion and colonial dominion throughout recent history.

Notably, the current space programs are still in their infant phase of development. But in the years to come as technologies advance, it will become even more important to consider who—and, in the spirit of posthuman interests, *what*—is engaging in the colonizing work as we venture further into space. Jim Bell discusses in *The Interstellar Age* how, in the twenty-first

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<sup>219</sup> Linda Billings, “Frontier Days in Space: Are They Over?” 189.

century, many public and private aerospace companies are “bottom-line and profit-driven,”<sup>220</sup> and are, unbeknownst to the public, heavily funded by powerful governments all over the world. He further explains that these powerful companies are currently controlling “about thirty different spacecraft that, together, make up an impressive robotic armada send out to explore our solar system and beyond.”<sup>221</sup> Based on his final chapter, Bell seems to find this enterprise to be inspirational because he follows this comment by stating that humans should be excited to live “in an amazing Golden Age of Exploration, of our planet and of our solar system.”<sup>222</sup> It is easy for readers to get swept up in such enthusiasm, yet the word darkly reverberates: *armada*. The term denotes a fleet of warships, which conjures up images of militant expansion and conquest on an open sea. Unlike before, however, ‘robotic armada’ is not a term used for the world of science fiction. It is in the skies above us.

As a rhetorical scholar, I hope to consider the implications of this as governments and space companies begin to enter space with technologies meant to expand us: scientists are set to excavate asteroids for mineral resources, to create space stations for fueling and resupply, to repair satellites and telescopes, to colonize other planets, and / or to engage in profitable adventure tourism (e.g., in 2018, SpaceX will fly civilian passengers on a trip around the moon as the first outing of cosmic adventure tourism; Elon Musk, the CEO of SpaceX, said the moon trip will contribute to SpaceX’s ultimate goal of establishing permanent Mars colonies<sup>223</sup>). If these ‘robotic armada,’ our growing collection of space technologies, are technological prosthetics of us, how might they colonize, speak, remember, or explore on our behalf? How do

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<sup>220</sup> Jim Bell, “Postscript: New Space” in *The Interstellar Age: The Story of the NASA Men and Women Who Flew the Forty-Year Voyager Mission* (New York: Dutton, 2015), 294.

<sup>221</sup> Ibid., 291

<sup>222</sup> Ibid.

<sup>223</sup> Calla Cofield, “SpaceX to Fly Passengers on Private Trip Around the Moon in 2018.” *Space.com*. February 27, 2017. <http://www.space.com/35844-elon-musk-spacex-announcement-today.html>

these robots narrate a new method of colonialization as they expand outward? What follows? These questions emerge at the forefront of my mind as I end this particular study, and I do not claim to have all the answers. What I can say is, with theories in posthuman rhetoric, we can begin to more clearly understand the ways in which we are being moved, how our entangled extensions orient us in complex ways as we again spread outward onto these “new frontiers” of space. Current slogans for the collective space archives — “are you on board?” and “your place in space” — remind us that in the twenty first century, the body proper does not have to be present in order for us to be “there.” With technological extensions of ourselves, our (curated) memories, we colonize territories in a way that we have never been examined before. These technological, commemorative practices advance a new way of undertaking and even narrating our evolving relationship with colonization—through with a chorus of VwO, or even a ‘robotic armada’—that deserve closer, critical examination in its complex articulation. Thus, in the final section of this thesis I briefly outline what I think this work means as we extend old ideas onto new horizons.

### **Necessary Expansion**

I began this study by stating that, until recently, the study and practices of rhetoric and human communication in the West have traditionally been oriented as an Earth-bound, human-to-human endeavor. Similarly, rhetoric has often been expressed as some form of pragmatic, persuasive art, practice, and theory taken up by and for humans. Within that framework, scholars have worked to analyze language and symbol use, be it oral, written, or otherwise signified. Why? One reason could be because the “onset of rhetoric ...is often triggered by moments of cultural instability

marked by political, language, and media transformations.”<sup>224</sup> Rhetoric, then, can in part be seen as a strategic response to moments of change and instability because, over time, language practice has demonstrated its ability to establish and sustain order. This idea is certainly underscored by the impetus for space exploration during a time of social and global instability. Likewise, rhetorical theory has often operated as an analytical instrument within the realm of language and the symbolic—the power and persuasive appeal of words, of discourse, of communication both spoken and written.

However, more recently there has been a shift away from only addressing symbolicity in rhetorical work. However, without necessarily *rejecting* the importance of language and symbolicity, scholars are now moving toward expanding the boundaries of rhetoric by tracing rhetorical formations that lie beyond classic parameters of linguistic persuasion and representation meant to move human audiences. That is to say, upon realizing the increasingly complex influence of technologies, material objects, and networks acting on and through human beings, some are now attempting to blur the boundaries of the rhetorical tradition and its linguistic separation of subject and object. Thomas Rickert, for example, begins to do so by moving toward the idea of rhetoric as both an *ambient* art and a living practice. In his recent theorizing, he draws from Heidegger’s idea of the “world”—how it is the mutually achieved composite of meaning *and* materials.<sup>225</sup> Donna Haraway, too, famously wrote “The Cyborg Manifesto,” a controversial work that outright rejects and upends the seemingly rigid boundaries between human, animal, technology, machine. Mark Hansen also argues that technologies impact our “embodied lives in ways that remain invisible at the level of our cultural inscribed expectations, technologies effectively *force* us to experience changes in our material

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<sup>224</sup> James Jasinski, “Introduction: On Defining Rhetoric as an Object of Intellectual Inquiry.” *Sourcebook on Rhetoric*, xvii.

<sup>225</sup> Thomas Rickert, *Ambient Rhetoric: The Attunements of Rhetorical Being*. University of Pittsburgh Press, 2013.

environment that are no longer thematizable in representationalist terms,” and concludes that “technology thus provides a bridge between the material, physical world described by science and the domain of lived experience.”<sup>226</sup> Thus we are not influenced or moved merely by words and symbols, but also by the sociomaterial realms in which we are enmeshed and networked every day. This absolutely includes space scientists and their missions. In short, if we use these posthuman concepts as a guiding theoretical framework, then we can no longer insist that humans are the only ones doing the doing, the persuading, the speaking, the affecting.

From this, I think the implications for this study are rather clear. As technologies, materials, memory, things, and humans interconnect and extend in the twenty-first century, rhetorical work must also expand in order to account for these complex relations. As McKeon put it, rhetoric is an “instrument of continuity and change, of tradition and revolution.”<sup>227</sup> Rhetorical itself, then, could be understood as an instrument, a technology: “the logos of technē”<sup>228</sup>—a tool that works to produce worlds, change, and action. We can use rhetoric to begin tracing and disclosing these new relations. Indeed, for scholars of rhetoric and communication—particularly those within the subdiscipline of rhetoric of science, I imagine—studying space exploration technologies offers a glimpse of how humans can be (re)oriented toward some action or attitude, as enacted by technoscientific prosthetics beyond the body. Not only do we have the ability to exteriorize our memories, we also have the ability to exteriorize ourselves, especially through technoscientific means. These material externalizations matter, as they have power. The object, the thing, the matter matters. Listening to the medium—to Voice without Organs as it speaks and engages in

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<sup>226</sup> Hansen, “Locating the Technological Real” in *Embodying Technesis: Technology Beyond Writing*. (Ann Arbor: University of Michigan Press, 2000), 60.

<sup>227</sup> Richard McKeon, “The Methods of Rhetoric and Philosophy: Invention and Judgment.” In *Selected Writings of Richard McKeon, Volume Two: Culture, Education, and the Arts*. University of Chicago Press: 1998: 206.

<sup>228</sup> *Ibid.*, 206

posthuman discourse—matters. These things have as much rhetorical clout as any symbol system we have analyzed before, and deserves to be attended to seriously. Indeed, as humans of Earth stand on the brink of a new era of space colonization, preparing to settle new worlds with a fleet of prosthetic probes and machines, I hold fast to the idea that there are other things interacting with and *through* humans to produce attitudes, actions, memories, voice. That is to say, the work of expansion and exploration is no longer centralized to the body proper, and it is no longer only a mission of arrogant colonialism; it is desperately dispersed across time and space by our networks of technologies and machines—of which humanity is only one small, integrated part—as we make our place in space.

Forty years later, the Voyager Golden Records are still adrift out in space, but now they are only one out of a growing number of space technologies, probes, and prosthetics that seek to commemorate and remember us as they journey into the dark, eternal voids of space beyond the stars—to remember, to speak, to communicate, to live on for and with us. Because, just as Ann Druyan remarked, “Voyager moves among the stars, bearing its cargo of echoes and images, and, in the logic of such distances, keeps us alive.”<sup>229</sup>

Are you on board?

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<sup>229</sup> Carl Sagan et al., *Murmurs of Earth*, 160.

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