

Article

Following the Path That Heroes Carved into History: Space Tourism, Heritage, and Faith in the Future

Deana L. Weibel

Departments of Anthropology and Integrative, Religious, and Intercultural Studies,
Grand Valley State University, Allendale, MI 49401, USA; weibeld@gvsu.edu

Received: 29 November 2019; Accepted: 28 December 2019; Published: 2 January 2020



Abstract: Human spaceflight is likely to change in character over the 21st century, shifting from a military/governmental enterprise to one that is more firmly tied to private industry, including businesses devoted to space tourism. For space tourism to become a reality, however, many obstacles have to be overcome, particularly those in finance, technology, and medicine. Ethnographic interviews with astronauts, engineers, NASA doctors, and NewSpace workers reveal that absolute faith in the eventual human occupation of space, based in religious conviction or taking secular forms, is a common source of motivation across different populations working to promote human spaceflight. This paper examines the way faith is expressed in these different contexts and its role in developing a future where space tourism may become commonplace.

Keywords: anthropology; tourism; spaceflight; NASA; heritage; exploration

1. Introduction

Space tourism is an endeavor, similar to but distinctly different from other forms of space travel, that relies on its participants' and brokers' faith that carrying out brave expeditions, modeled on and inspired by those in the past, will ultimately pay off in a better future for humankind. Faith, in this case, refers to a subjective sense that a particular future is guaranteed and may or may not have religious foundations. This faith appears to be heightened by the collective work undertaken by groups endeavoring to send humans into space, creating a sense of what anthropologists Victor and Edith Turner have described as *communitas*, a shared feeling of equality and common purpose. The Turners developed the idea of *communitas* through studies of religious pilgrimage and the ways in which travel to sacred places allowed individual pilgrims to connect symbolically and emotionally to each other and with pilgrims of the past and future (Turner and Turner 2011). *Communitas* exists outside of religion as well, with Edith Turner's later work identifying its evocation via sporting events, national tragedies and concerts (Turner 2012). Workers in industries that focus on space tourism and the tourists themselves describe feelings of connection to other forms of exploration (particularly polar exploration and early space exploration) that suggest a sense of connection to these earlier explorers that motivates them and encourages optimistic faith in the future of human settlement beyond the Earth.

Space tourism, travel undertaken by paying customers into outer space, is almost certainly the least practiced form of tourism. This is mostly due to its high price tag, but also because space tourism has been seen by many participants in government space work as an intrusion into an arena of serious business, where science is tested and technology developed by authorities with specialized expertise. Although academics and researchers have granted respect to space tourism as a new form of human endeavor (see most recently Cohen and Spector's 2019a edited volume on the topic), it has been a hard sell for those at NASA. In an email communication with the author on 16 December 2019, long-time space analyst and historian Dwayne Day explained, "There has long been a hierarchy among American astronauts. Mission commanders are at the top, with pilots just below them. Then the

mission specialists. At the bottom of that hierarchy were the payload specialists, because they did not go through the same extensive training as the mission specialists and above. Most astronauts likely look down on the people who bought a ride into space because they haven't gone through the rigorous training that career astronauts do—but the career astronauts will rarely say anything negative even about the tourists.”

While space travel for scientific, technological, or financial gain, then, is mostly seen as legitimate (for a discussion of social movements that saw NASA missions as illegitimate, see [Maher 2017, 2018](#)), within the industry questions have frequently been raised regarding the unfairness of allowing the rich to buy their way into space, whether ordinary people would even be interested in space travel should it ever become affordable to them, and when the companies involved will actually get tourism underway instead of just planning for it. Space travel funded by governments or private companies is understood as serious business, while space tourism tends to be dismissed as something rich people do for purely self-centered reasons or as a way of sidestepping the strict requirements that legitimate astronauts and cosmonauts have to meet. NASA administrator Dan Goldin publicly opposed the 2001 participation of space tourist Dennis Tito, and *Orlando Sentinel* journalist Michael Cabbage explained that Goldin was not alone in his view: “Tito’s critics have had lots of complaints: His stay on the station would be a misuse of taxpayer-funded resources. Allowing a rich guy to simply buy a trip to space makes a mockery of the stations’ science-based mission. It’s unfair to more qualified astronauts who have trained years for such an opportunity. Sending civilians to the station is dangerous” ([Cabbage 2001](#)).

While it may not be the case forever, space tourism has, in fact, been limited so far to “rich guys”. Wealth is certainly a current requirement for would-be participants in space tourism. As it stands now, the price tag for a civilian to purchase a ticket for a promised suborbital flight with an outfit like Virgin Galactic starts at 250,000 USD, while Cirque de Soleil founder Guy Laliberté, whose trip was brokered by American company Space Adventures, paid Roscosmos the equivalent of 35 million USD in 2008. However, the price of Japanese entrepreneur Yusaku Maezawa’s advertised lunar orbit voyage with SpaceX has not been disclosed ([Davis 2018](#)). Because of this fewer than ten people have ever bought tickets to travel to space¹.

In addition to being rare, space tourism does not initially seem like the kind of travel that would typically be classified as heritage tourism. While visiting launch sites at the Kennedy Space Center or touring Mission Control at the Johnson Space Center may evoke emotions like patriotism and an appreciation for historic human accomplishments ([Cater 2019](#)), leaving the Earth to enter the vacuum of space appears future- rather than past-oriented. Space tourism seems like science fiction, not part of human history.

I argue, however, that space tourism can be understood as a form of heritage tourism in that it permits individuals to participate in activities that recreate events and evoke historical personages. It is not the only form of heritage tourism with this kind of focus. A tourist who goes to the modern-day 2020 Olympic Games in Tokyo, for example, might experience a similar connection to heritage. The Olympic events and venues of the 20th and 21st centuries are very different from those found two thousand years ago in ancient Greece. Despite this, Olympic planners and participants are aware of the heritage of the event, understanding the current games as a continuation of the Games’ original form. Athletes participating in both classic events like wrestling and first-time events like skateboarding can claim to be part of a lineage of Olympic athletes, connecting them across time to the Olympic athletes of the long ago past. Observers, too, are generally reminded of the long history of the concept of the Olympics, particularly since it is expected that the organizing committee of each country will “create an opening ceremony that reflects the culture of the host nation, while also paying homage to ancient Greece” ([Conlon 2015](#)). In a similar way, a large part of the appeal of space tourism is its ability to

¹ A few others, like company-funded payload specialists or Senator John Glenn who undertook his second spaceflight at the age of 77, are sometimes considered “space tourists” as well.

position those involved, both tour providers and (to use the preferred term) spaceflight participants, into a lineage of explorers, both space-based and terrestrial, creating a sense of *communitas* with past and future explorers and bringing about a sense of optimism and faith about the future.

The title of this article is based on two sentences from a memoir written by Richard Garriott (who now goes by the name Garriott de Cayeux) and David Fisher about Garriott's self-funded voyage into space. Garriott states, "My heroes are people who took epic journeys into the unknown, often at substantial personal risk. I am simply following the path that they carved into history" (Garriott and Fisher 2018). The few fortunate people who have been able to be included as spaceflight participants are similar to the many "space workers" involved in everything from human spaceflight and space medicine to robotic exploration and astronomy in that they share a passion for exploration and increased scientific understanding, seeing themselves as contributing to the great project of building a bridge to a destined future where humans will take their proper place in outer space.

The purpose of this paper is to illustrate how spaceflight participants and providers, sometimes belittled by governmental space agencies and frequently criticized for "the disparity between aspirations and achievements" (Cohen and Spector 2019b), are inspired and buoyed when they position their goals within the larger historical framework of human exploration. Richard Garriott, may have been forging a new trail as a spaceflight participant, but he and others like him speak instead of "following the path." I will discuss the way this "path" is followed, considering the strong faith in the future exhibited by many of those involved the space tourism industry, the subjective meanings derived from this faith, the manifestation of this faith among both religious and non-religious individuals, how models of exploration from history provide a greater context for and significance to space tourism, spaceflight participants' defenses against critics, the very explicit use of polar exploration and polar tourism as models for planning and understanding space tourism, and how the continuous references to past exploration made by spaceflight participants and space tourism workers both demonstrate the significant role played by heritage in space tourism and create a sense of faith in the future.

2. Methodology

I am coming into this research as an anthropologist of pilgrimage with nearly twenty-five years of field experience studying religious shrines in France and the United States. I developed an interest in space exploration at an early age, and was always curious about the religious beliefs, motivations, and activities of people who traveled in or studied outer space. Over the course of my career my academic interests turned increasingly to space, encouraged by my husband, space historian (and former Johnson Space Center chief historian) Glen E. Swanson. Over the last fifteen years I have become increasingly socialized into multi-sited "space culture," attending conferences, interviewing space workers, learning the history of various missions, reading biographies and histories and visiting significant locales.

Anthropological research is often mostly or exclusively qualitative, and typically seeks to understand the inside perspective of the people they study, learning about the culture by experiencing it while using qualitative ethnographic techniques. One such technique is to interview a variety of cultural experts, people within the community who are members and know it well, while another, called participant-observation, involves the ethnographic researcher joining in the activities of the society being studied, learning about them firsthand. This inside information is analyzed within the larger context of existing anthropological research, helping the ethnographer to uncover commonalities and differences among societies, and often establishing repeating cultural patterns.

Unlike the small villages sometimes studied in traditional anthropology, the space worker community is not located in a fixed geographical location and is extremely multifaceted. I attempted, then, to work with a large variety of cultural experts, conducting interviews with engineers, astronomers, astronauts, aerospace physicians, technicians and others. I also did participant-observation whenever possible, including attending space and space medicine conferences, going flying with a private space company test pilot, and living for four weeks on the grounds of the Vatican Observatory, interviewing

physicists, attending meals and gatherings, shadowing tour groups, and learning about the Jesuit astronomers' research areas, biannual summer school, and meteorite collection. I also followed standard ethnographic practice by supplementing this firsthand research with published first-person accounts and mission transcripts as additional sources of data. Although on-site research in space would be ideal, it is not a field site that an anthropologist can realistically aspire to, at least not at this time. The majority of interviews cited here took place during the 2019 NASA Human Research Project Investigators Workshop in Galveston, Texas, with others conducted at the Mojave Air and Spaceport, at the annual Spacefest event in Tucson, Arizona, or via email. I will use pseudonyms to protect the identities of my interlocutors, marking first use with quotation marks.

3. Great Expectations

While space tourism is a relatively new phenomenon, generally considered to have begun with Dennis Tito's shuttle launch in 2001 to the International Space Station (ISS), where he spent eight days, its precursors began almost a century earlier. Webber (2013) recounts the history of passengers who have accompanied pilots and astronauts, starting with a description of a brave soul who perched on the wing of a Wright Flyer. He concludes with a discussion of a tourist excursion into lunar orbit, "following in the footsteps of the Apollo 8 crew," proposed by the American company Space Adventures. Their clients have included the aforementioned Tito, Laliberté and Garriott, as well as Mark Shuttleworth, Gregory Olsen, Anousheh Ansari, and Charles Simonyi. Another client, Daisuke Enomoto, had his proposed 2006 flight cancelled due to issues with his health (Ansari was his replacement), and his 21 million USD payment was not refunded. Enomoto's subsequent lawsuit against the company was dismissed in 2009 (Meredith and Lammers 2012). Other spaceflight participants, such as Hazzaa Ali Almansoori, have been funded by organizations or national governments.

Webber optimistically predicts that space tourism will be part of a future where commercialization of space is unavoidable, particularly because of the profits that can be obtained through these ventures. He writes that space tourism:

... has the potential to develop many billions of dollars annually in revenues, with associated benefits in employment and taxes. There will not only be employment opportunities created directly by space tourism, but also indirectly in the support industries and at the spaceports. Tourism in general is one of the largest sectors of the commercial world economy, and space tourism will provide a new exotic realm beyond the world cruise and adventure holiday domains which currently exist. (Webber 2013)

Although many scholars of space exploration have grown cynical about the space tourism industry, particularly issues of cost, client safety, and delayed delivery of promised experiences (see Day 2018; Foust 2018; Cohen and Spector 2019b), the companies themselves seem hopeful, with full faith in their missions.

This confidence recalls David Valentine's description of the capitalist dreams of NewSpace (private space industry) advocates who "argue that in order to thrive, even to survive, the human species must develop settlements through commercial space enterprises" (Valentine 2012). In the NewSpace vision outlined by Valentine, outer space becomes a new setting for entrepreneurship, where asteroids are mined, helium-3 is extracted from the moon, and space tourism becomes a necessary part of off-earth business and industry. The commercialization of space has been a frequent part of Hollywood's depiction of the future, such as in the recent film *Ad Astra* where the hero joins tourists on a commercial flight to the moon and discovers businesses like Virgin Galactic, Subway, and Applebee's all available in a kind of lunar shopping mall (Gray 2019).

Realizing this bright vision of the future, both the broader development of space as a site of profitable commercialism and the narrower goal of establishing space tourism as a specific type of commercial enterprise will be impossible at worst, challenging at best. To get space-based businesses underway, obstacles such as the extremely high cost of space travel would have to be overcome. To

provide some context, a report for the IDA Science and Technology Institute suggests that the least expensive of two possible scenarios for a NASA-funded mission to Mars would cost 172 billion USD (Linck et al. 2019). According to David Valentine, finding a way to pay for these costly ventures, even within the purportedly more cost-effective private space industry, would require reconciling “exit strategy”-focused approaches of investors (in which investments are withdrawn before profits can fall) with the NewSpace imaginary of space as a long-term investment with no exit required. The commercialization of space would require capital to fund spaceflights and mining missions, but also to keep the required technology continually advancing and improving. As Valentine learned from his subjects, “space is expensive” (Valentine 2012).

Other challenges to be surmounted are the medical issues that arise when humans leave earth for any length of time. Although suborbital space tourists would be unlikely to be profoundly affected during a short duration flight, one astronaut I interviewed predicted that touristic flights would simply involve sending people up, keeping them up long enough to become nauseated, then returning them to Earth (to be fair, space tourist trainer Beth Moses did not experience nausea in a 2019 suborbital Virgin test flight (“No Nausea for Beth Moses,” *Space Daily* 2019)). Longer periods spent in space, however, under conditions of microgravity and increased radiation, can have decidedly negative health associations. As Joanna, a space-focused medical clinician I interviewed put it, “We grew up in one-g and we put ourselves into zero-g and we break.”

The recent NASA twins study, which compared Earth-bound astronaut Mark Kelly with his identical twin astronaut Scott Kelly after the latter spent 340 days in the ISS, demonstrated that long duration spaceflight can have an effect on such diverse biological phenomena as telomere length, the composition of gut flora, gene regulation, and body weight. Shortened telomeres and chromosome damage persisted when Scott Kelly was tested again six months after returning to Earth (Garrett-Bakelman et al. 2019). It is possible that any people working long-term in space in proposed commercial space endeavors would undergo similar medical changes, the implications of which are still unknown. Fear of space-caused illnesses might also have a negative impact on space tourism, discouraging potential participants.

4. Obstacles, Optimism and Heritage

Financial, technological, and medical obstacles make commercial enterprises in space, including space tourism, seem unrealistic to many. Valentine argues, however, that “NewSpace activities are not simply in the realm of fantasy; companies are actually building rockets, spaceports, and habitats.” He goes on to explain that although financial success is one goal of the NewSpace movement, the larger goals are rooted in an ideology based on the imperative to save the human race through human expansion to planets and planetary bodies beyond Earth. Commercial enterprises, then, can be understood as part of a much larger long-term project, making humanity into a multi-planet species. NewSpace advocates generally see themselves as participants in the transformation of human life into something more significant (Valentine 2012).

NewSpace advocates’ sense of faith in something larger, something destined—the project of settling outer space—is common among people involved in space exploration, including those involved in space tourism as operators or participants. This idea gives meaning to people’s work by making that work seem like an important contribution to the future of the human race. There is faith that this work will succeed. Space workers, both religious and secular, describe permanent human communities elsewhere in the solar system as inevitable, with the significance of their work and its fated outcome creating a sense of hope about the work at hand. Faith in the future of humanity’s relationship with space provides tremendous motivation; a feeling that one is destined to succeed encourages continued effort.

Spaceflight participants and those who work in space tourism, like many other space workers, speak of themselves as part of a community of explorers that stretches back in time and forward into the future. They understand themselves to be part of a project that began with Leif Erikson

and Columbus, continued with polar explorer Shackleton, rocket scientist von Braun, and astronaut Armstrong, and will stretch, with their help, into the future. This kind of membership in a coterie of explorers is important for many space workers, such as “Cody,” who worked for a private space company before being hired by NASA. He said:

Maybe it isn't so much that we've been assigned a goal and we need to carry it out, but more that it's just another part of the evolution of people . . . We can't *not* explore things because the people who don't explore things die out . . . I always imagine what it must have been like for Neil Armstrong, I mean the first guy, and Buzz too. This is something that billions of humans for millions of years, well, thousands of years, have thought was impossible, and here he is stepping out on the surface of the moon. It takes some guts to do that . . . I mean, I would've given them 50/50 odds of coming back home alive. But they *do* it. But the point is, that the human race is full of people like that . . . Shackleton (is) . . . kind of the epitome of the non-aerospace version of the intrepid explorer who was willing to risk his life . . . I think it's built into our DNA. I mean, it's a part of evolution, is that you explore beyond your environment and settle in a new environment.

This admiration for past explorers, particularly those who showed great machismo or tremendous grace under pressure, marks many space workers. Cultural anthropologist Lisa Messeri, for example, discusses how an uncritical love for exploration is found among planetary scientists, who see exploration (despite its colonial past) as “an unquestioned good” (Messeri 2016). I will not try to unpack the problematic history and underpinnings of the concepts of exploration and colonization here, but will focus instead on how they are used by those involved in commercial space travel. A focus on space travel as exploration provides an opportunity for participants to associate themselves with historical figures from the past.

Engaging in tourism while focusing on historical antecedents is not, of course, limited to space tourism and fits within the definition provided by the National Trust for Historic Preservation, which characterizes heritage tourism as “traveling to experience the places, artifacts and activities that authentically represent the stories and people of the past” (“Today's Word: Heritage Tourism”, National Trust for Historic Preservation 2015). As I will explain in the next section, human exploration (on Earth as well as in space) can be understood, following this definition, as one of these “stories . . . of the past.” Spaceflight participants often describe themselves as experiencing the story of human exploration through the activity of space tourism. Moreover, employees of space tourism agencies also tend to situate space tourism within the historical context of human exploration. The history of exploration on Earth is seen as part of our human heritage, with opportunities to explore space connecting us to and “authentically represent(ing)” our explorer past.

5. A Question of Faith

As mentioned above, many of the space workers I've interviewed have had a strong sense of destiny about the inevitability of humanity expanding permanently into space and becoming a multi-planet society. My first space worker interview was with an evangelical Christian astronaut whose religious views had a strong impact on his interpretation of his NASA career and experiences in space (Weibel 2015). Since then, I have interviewed atheists, agnostics, and religious believers from Hindu, Jewish, Muslim and other types of Christian backgrounds. Those with a more religious worldview tend to argue that humanity was created with an urge to explore and that it is a necessary part of our future to expand into space.

The aforementioned space doctor “Joanna,” for instance, is married to a Presbyterian pastor and I interviewed both of them at the same time. Joanna's husband “Bruce” participates enthusiastically in her space work, organizing astronomy events for his congregation and bringing themes of space travel into his sermons. He explained that in Acts 17, the apostle Paul “talks about how we were created to reach after and grasp after God. And so it's just part, inherently, of our being to grasp after God

and realize who He is. And as we do that in science and space exploration, we are affirming God's presence and guidance in our lives."

"Russ," a Catholic doctor involved in occupational medicine in one of NASA's southern flight centers, also thought humanity had divine authority to go into space, saying, "Why not? He gave us brains. He gave us the ability to reason, to understand. So why not—to me it's just dumb for Him to say, 'I'm going to give you all these capabilities. Don't use them.' It doesn't make sense to me."

"Carol," an engineer involved in robotic space exploration, understood human destiny in space from a perspective gleaned from her background in the Society of Friends. She told me:

I think we are influenced by . . . we obviously have our brains, but if you've ever sat in a Quaker meeting for worship, a silent worship . . . when someone stands up and they speak the very thing that is in your mind, it's like this collective thought that somebody eventually speaks. And to me that, that sort of tells me that there is some wavelength or something, that if we listen deeply, that we tap into. And so I know that perhaps it's a stretch, but I believe that space exploration . . . I think there could be a connection. I think other things like when you hear about this discovery of . . . I guess the one that's coming to mind is the double helix in DNA. You know, it was discovered by really more than just one person. One person got the credit, but it all kind of happened at the same time. Some people might say it's the technological advances that just led people to jump to this conclusion. But I think there's another possibility . . . there is something else that we just haven't tapped in to specifically. Sometimes we get the message, sometimes we don't.

Although most of my religious interlocutors have been Christian, I heard similar understandings expressed by people of other religions, such as a Muslim woman who pointed out a verse from the Qur'an she interpreted as encouraging space exploration, and a Hindu researcher who felt her *dharma* (duty) was to explore space. One of my astronaut respondents, who was raised Christian and maintains something of a Christian identity, contended that human life came to earth from astronauts from other planets and that the first humans were spacefaring, lost that ability, but would regain it over time.

It seems logical that religious belief and a faith in a positive future for humankind might go together, but many of my non-religious subjects also had what can only be described as faith, not based in religion but still steadfast and unyielding, in a human future in outer space. "Solomon," a biophysicist who embraced atheism after years as an agnostic, described human expansion into space as "inevitable," arguing that no problem with biology or medicine would be able to prevent it. He didn't have a logical explanation for his passionate certainty, but he didn't need one. He just knew. I asked what made him so sure we could overcome these physical difficulties and he responded, "It's inconceivable that we can't. I cannot grasp a universe where we can't solve these problems."

"Mike," a NASA biologist, left the Catholic church of his childhood and became an atheist. His sense of human destiny in space and a faith in our ability to settle there seemed more realistic and tempered than Solomon's, but still apparent. He described the human future in space, saying, "It's going maybe take us 20, 30, 40, well, it's been 50 years now. It's going to take us, within a hundred years, we'll have a colony up there, but that colony is not going to be hundreds of people. I don't foresee that in the foreseeable future. I could be wrong. I could be wrong on that. If Elon Musk has his way, maybe we'll be flying a rocket every day." Mike's research made him deeply aware of the way spaceflight changed and damaged the human body, but his faith in eventual settlements, even small ones, was not shaken.

A Mojave test pilot, "Orville," had some fascinating and particularly well-developed ideas about the human future in space. He had left the Christianity of his childhood behind but believed in a sort of secular immortality of ideas. Orville worked for one of the private space companies based in Mojave, one with a direct connection to space tourism, and was a deeply involved participant in the goals of NewSpace. One of his pet ideas was that throughout history, some people have been born with genes that encourage them to explore the world. These types of people have been the ones who set out on

reconnaissance missions to unknown places, and who, after the era of polar exploration was over were told, “Nope, we’ve gone to all the places, tough luck.”

When confronted with a planet that seemed to have been completely mapped, he felt, these people were the ones who began to pursue space exploration. Orville argued that when space travel became a possibility, so did unlimited opportunity for discovery, explaining that now those “people with the explorer/frontier genes will always have an outlet to define themselves as such.” Orville’s perspective was one where human expansion into space was a given, one that was logical, given all the circumstances. He said, “So I think the SpaceX, Elon Musk’s multi-planetary species thing is a really cool concept, and I think the idea of spreading people out so we’re less easy to annihilate . . . obviously that should be a far field goal . . . I think providing a frontier for people to expand into is important.” He concluded that living on an Earth with no room for expansion and where available resources could not meet basic needs was an unhealthy situation, with human expansion to other planets the most logical solution.

Orville’s viewpoint lines up with the NewSpace ideology described by Valentine in which “in order to thrive, even to survive, the human species must develop settlements beyond earth through commercial space enterprises.” This perspective, which is generally accompanied by a strong faith in the power of capitalism to improve the lot of humanity, is incredibly motivating to NewSpace advocates. Valentine emphasizes the NewSpace belief that permanent space settlements are “imperative,” an understanding that sees the profit potential of capitalism not as an end but as a means to the larger goal of permanent settlements on other worlds (Valentine 2012). NewSpacers have faith in capitalism, but a greater faith that becoming a multi-planet species is the only thing that will assure human survival in the future. Belief in that possibility and the opportunity to participate in the project of achieving it are strong motivations for many people involved in space work.

6. The Space Project and Its Antecedents

The feeling of participating in an enormously important undertaking that started in the past and will continue into the future is incredibly moving. Space exploration is not the only human endeavor that evokes these feelings. Mission work for a religious institution is similar, as is raising a family or planning a city. The participant is simultaneously aware of the beginnings of the project in the past, the hope for the future, and their current, crucial role of linking those time periods together. Space exploration is different from these other projects, however, in its explicit ties to colonialism, particularly the concept of manifest destiny that encouraged Europeans to expand the American border westward.

Catherine L. Newell explores this connection in an analysis of how Walt Disney and Wernher von Braun worked together (despite von Braun’s troubling history working for the Nazis and his responsibility, through that work, for thousands of deaths) through television programs and the Disneyland park in California to transform nostalgia for America’s frontier past into an interest in America’s burgeoning space program. Newell writes:

Disney’s Tomorrowland, with its beginnings as a documentary television show and in tension with Frontierland, paralleled the way in which the nostalgia for the frontier slowly became faith in the future in the American imagination. Tomorrowland’s rocket and space station represented the promise of a new frontier. They were symbols of faith that outer space was twentieth century America’s “manifest destiny,” the conviction that America was called by God to be a New Israel, and to settle and subdue the wilderness through hard work and faith. The two dichotomous frontiers summed up America’s popular history: there once was a frontier that was conquered, but thanks to American ingenuity and gumption, soon a new frontier will open and offer Americans a chance to recapture the pioneering spirit of the first frontiersmen by settling on the moon. It is the destiny of every American to strike out for new horizons that lie beyond the edge of Earth’s atmosphere, because the future lies just around the corner of tomorrow. (Newell 2013)

Another site of nostalgia, one with more explicit ties to space exploration, is the Heroic Age of Arctic Exploration that took place from the late 19th century through the first decade or so of the 20th century, and is associated with such polar explorers as Nansen, Byrd, Amundson, and Shackleton. The westward expansion of Europeans across North America is a clear influence on the American space program. As Linda Billings writes, “For more than 150 years, the metaphor of the frontier and the idea of manifest destiny have held prominent places in American consciousness. These concepts were important elements of the rationale for American westward expansion in the nineteenth century. And they have played a significant part in the history of the U.S. civil space program as well, providing a goal somewhat loftier than simply winning the Cold War space race” (Billings 1997). In more recent years, however, the inspirational power of European-Americans’ spread across the North American continent has waned, due to increased awareness of the victims of this expansion, particularly the Native American populations that were displaced or extinguished. Conversely, the idea of Arctic exploration, like space exploration, is described more often as human expansion into unpopulated areas, specifically areas that could not serve as human habitats without the intensive use of technology (anthropologist Julia Offen, who conducted ethnographic work on Arctic research stations in the 1990s reminded me in a 21 September 2019 personal communication, however, that “The really big difference between the poles is of course that there ARE Natives in the North, so you can’t say in any uncomplicated way that you are heroically ‘exploring’ the way you could in the South”).

Antarctic exploration in particular, then, serves as an obvious and acknowledged model for people involved in contemporary space exploration. NASA has a history of using Arctic sites as analogs for space stations or off-Earth habitats. In August 2007, for example, NASA conducted the Arctic Mars Analog Svalbard Expedition, whose objective was to “to study an extreme Mars-like environment using instruments and techniques that may be used for future planetary missions” (Dunbar n.d.). The harshness of the environment is meant to approximate the harsh conditions of exploration (and knowledge of the eventual success of many Arctic explorers, despite the difficulties of their missions, can be an encouraging side effect).

An Antarctic influence also appears in a NASA report prepared by anthropologist Jack Stuster in 2010. Stuster worked with ten astronauts participating in various missions on the ISS. The astronauts kept personal daily journals, which were downloaded and analyzed by Stuster, who focused on such areas of everyday living as group interactions, recreation, medical issues and food. At the end of the report, Stuster makes recommendations to NASA on how the astronauts’ experiences in space may be improved.

Stuster’s report actually begins with a quotation from Fridtjof Nansen, who led the Fram expedition to the North Pole in 1893 (Huntford 2005). The quotation reads, “Truly, the whole secret lies in arranging things sensibly, and especially being careful about the food.” The ghost of Nansen haunts the rest of Stuster’s report, such as when he notes that an astronaut subject’s written complaint about wanting to have “real food” echoes one of Nansen’s own diary entries. Stuster also emphasizes that efforts should be made to follow “Nansen’s admonitions about eating together and being careful about the food,” provides an image of Nansen and his ship, and at the end of the report in a section with explicit recommendations to NASA based on the study, reinforces one last time that NASA must listen to Nansen and be “especially careful about the food.” Stuster also draws an explicit parallel between Antarctic and space exploration when he suggests NASA include “surprises” along with the food, because “an unexpected treat contributes to morale among remote duty personnel when found . . . and is a tradition of expedition outfitters” (Stuster 2010).

The romance of the age of polar exploration and a nostalgia for the days of brave heroes who risked their lives in their quest to enter territories unexamined by human beings is a theme that appears frequently among spaceflight participants, both in memoirs and in interviews. The aforementioned Richard Garriott de Cayeux, for instance, describes himself as “an admirer of men like polar explorer Ernest Shackleton” (Garriott and Fisher 2018) and is a prominent member of the Explorer’s Club

(Shackleton was an honorary member, as are Amundsen, Nansen, Scott, Peary and other Great Age explorers) and actually owns a sextant belonging to Shackleton (Schwartz 2007).

Anousheh Ansari, the first Muslim woman in outer space (and co-sponsor of the 2004 Ansari X-Prize, which was won by Scaled Composites, a private space company that has worked with Virgin Galactic), completed nine days as an Iranian spaceflight participant in 2006 (Ansari and Hickam 2011). She has used comparisons to polar exploration to advocate for the use of the term “spaceflight participant” over the term “space tourist,” which she considers pejorative. In an interview published by the European Space Agency she explains, “I had to learn a lot more than a tourist would have to learn about their trip. The closest thing I can compare it to is people who go to exploration trips to Antarctica, or to the Arctic, or people who climb Mount Everest. You would never call them tourists. You would maybe call them ‘expedition member’ or some different terminology, but they would not like to be called tourists. So that is why I don’t like to be called a ‘tourist’” (“I Am NOT a Tourist”, ESA n.d.). While identification with explorers allows spaceflight participants to feel they are participating in a larger human project, and have faith (religious for some, secular for others) in its success, what is accomplished through tourism seems less important to the future of humankind.

7. The Low Prestige of “Tourists”

Anousheh Ansari’s declaration that a spaceflight participant should not be considered a tourist calls to mind anthropological research into pilgrimage. Pilgrimage, loosely defined as travel with a religious purpose, often to a site with religious significance, is often compared and contrasted with religious tourism, usually with mixed results. While Alex Norman and Carole M. Cusack argue that “decades of scholarly work . . . clearly indicates no clear distinction can exist between the two ‘types’ of travel” (Norman and Cusack 2015), Ellen Badone points out that there are subjective differences between the terms that make “pilgrim” a more prestigious category than “tourist” (Badone 2004).

In an essay that sketches out the distinctions between the terms “tourist,” “pilgrim,” and “ethnographer” (this last category demarcating the field work of the anthropologist), Badone notes that all three types of people travel, and all three types engage in leisure pursuits during that travel. Pilgrims (and ethnographers) shy away from being identified as “tourists” because of what Badone refers to as “the prevalent Western characterization of tourism as frivolous and hedonistic” (Badone 2004). Ansari is clearly drawing on a similar understanding of tourism when she insists her role was one that involved a great deal of “learning” and was similar to participants in “expedition trips.”

The work involved in being a spaceflight participant, in this view, sets it apart from the relaxation and play experienced by a tourist. By using the term “participant,” Ansari is indicating that she had a role to play in the mission being undertaken on the ISS and links her activities with the much more prestigious term “exploration,” especially in conjunction with polar exploration and mountain climbing. Certainly the physical strain of trudging across a frigid landscape or scaling Everest is much greater than that the conditions of microgravity experienced by even the most active astronaut executing an extra-vehicular activity (EVA) or running on a treadmill. In fact, one of the most common analogs used to study the body’s response to space travel is bedrest. The comparison Ansari is drawing, however, is not one of physical exertion, it is one of contributing to a shared project under potentially dangerous circumstances. Tourism is passive, while spaceflight participants see themselves as explorers—active, productive, willing to experience danger for the greater good (see Laing and Frost 2019, for a discussion of pro-social motivations for space tourism), and helping to create an intensely believed-in future that will benefit humankind.

8. Polar Tourism in Itself, and as a Model for Space Tourism

A perception of danger and sacrifice distinguishes both space and Antarctic tourism from leisure travel. National Geographic arranges visits to Antarctica and is very careful in its literature to associate potential travelers with the high goals of science and discovery (see Robinson 2006, for an analysis of the complicated relationship between science and polar exploration). Those who sign on, the

Expedition Overview states, will “use a range of exploration tools” as they participate “alongside a team of biologists, geologists, and undersea specialists,” “get up close to icebergs, wildlife and hard-to-reach places,” and observe and photograph various animals ([Journey to Antarctica n.d.](#)). The advertised rigors of the journey (which is classified as having a “low or moderate” activity level) contrast with the optional extensions which depict the voyager savoring wines and strolling down “palm-lined boulevards” in Chile or “twir(ling) alongside tango dancers” in Argentina, clear examples of leisure tourism.

In contrast, one of the National Geographic ships that takes visitors to Antarctica is named the *Endurance*, calling to mind Ernest Shackleton’s heroic (and ultimately successful) efforts to save the crew on his own *Endurance* after its 1915 entrapment in ice and later destruction. All 28 crew members on *Endurance* survived the ordeal ([Lansing 2015](#)) and it is certainly the romance and heroism associated with the voyage rather than the misfortune that befell the ship that caused National Geographic to use this name. Much of the appeal of Antarctica, to workers, scientists visiting the site, and to tourists, is in its associations with exploration and derring-do. For instance, retired psychology professor “Chuck” participated in a National Geographic-branded tour with an outfit called Linblad in 2010. The history of Antarctic exploration loomed large, He explained, “We (and pretty much every other tourist on the cruise) were well-read about polar exploration. That knowledge was assumed by the people who gave the nightly lectures. People cordially competed in showing off their knowledge of Shackleton, Amundsen, Scott, etc. in dinner conversation.”

There were also clear indications throughout the trip that Chuck’s expedition, polar exploration, and space exploration were all explicitly connected. He noted that the ship’s library “included a section of books on space exploration” and that space exploration was sometimes used as a simile to explain why visitors had to do certain things such as disinfecting their boots when going ashore or coming back on the ship. Another interlocutor, astronomer Mitch, who visited Antarctica to do scientific research, said he and his colleagues thought about space “all the time. It felt like being on a different planet. Other groups actually had astronauts as part of the team.”

Polar exploration and subsequent polar tourism are also an influence on and source of overt inspiration for people currently working in the private space industry, particularly for companies involved in space tourism. Virgin Galactic’s Richard Branson frequently visits Antarctica, using social media platforms to encourage conservation, and once answered a question on Twitter about whom he’d be if he couldn’t be himself with the tweet, “Perhaps Ernest Shackleton, the great explorer. How about you?” ([Branson 2016](#)). Amazon’s Jeff Bezos, who helms private space company Blue Origin, which expects to begin sending tourists to space in 2020, tweeted an image from an Antarctic expedition to hint about his company’s plans to send a lunar lander to the moon’s south pole ([Boyle 2019](#)).

Aforementioned test pilot Orville, whose work on experimental planes is often conducted with future space tourism in mind, frequently thought of his work as connected to polar exploration. He told me that his leadership style was largely shaped by the leaders of polar expeditions, while his understanding of space exploration was influenced by their specific missions. He explained, “The cool thing about all those exploration expeditions between 1890 and 1920 is . . . there’s few enough of them (that) you can get a handle on the whole constellation of them and who moved between expeditions and how they’re related and stuff. And it closely resembles spaceflight in the level of the risk, the amount of isolation . . . it is just differentiated by the technology.” Orville participated in something like polar tourism himself when he ran (on snowshoes) in the annual North Pole Marathon, but another voyage, a planned expedition to the South Pole, had been cancelled. His desire unfulfilled, he asserted wistfully, “I would kill to go to Antarctica.”

9. The History of Space Exploration as a Source of Heritage

Space tourism overlaps in interesting ways with polar tourism, and its participants and brokers certainly turn to polar exploration, particularly to Antarctica and particularly during the Golden Age, as a wellspring of historical motivation. Today’s space explorers, including the spaceflight participants,

are connected to the legacy of their courageous spiritual forebears who risked death (and sometimes found it) on the far poles of our planet.

Although the history of polar exploration reaches further back than space exploration, nearly sixty years have passed since the first human went into space, Soviet cosmonaut Yuri Gagarin. Humans first walked on the moon over fifty years ago, and, since these missions only spanned 1969–1972, there have been almost fifty years since the last man on the moon, Gene Cernan, left the final footprint on that desolate world's surface.

The veneration of astronauts and cosmonauts (see [Weibel 2019](#)), of course, is common outside of the space tourism business, but certainly plays a role within it as well. Spaceflight participants' memoirs reflect the tendency of these travelers to contextualize themselves within the larger history of spaceflight. Gregory H. Olson, for instance, describes attending a party with Edwin "Buzz" Aldrin and reflecting on how he got there. He writes, "It was a thrill to stand there talking with the pilot of the lunar landing module . . . Buzz was actually the second man to step onto the surface of the moon—he climbed down the ladder after Armstrong. I never imagined that I would follow in the footsteps of these pioneers," and, after learning that Aldrin was a fellow New Jersey native, "It was amazing how I kept finding common ground with all the people involved in space endeavors" ([Olsen 2009](#)).

Anousheh Ansari also describes attending a party with Aldrin, but makes additional connections to the early days of spaceflight too, noting the influence of the motto "Failure is not an option" (attributed to NASA Flight Director Gene Kranz) in her life. She also makes several references to the legacy of the first human in space, Yuri Gagarin, explaining that, like other cosmonauts, she watched the movie *White Sun of the Desert* ahead of her spaceflight because Gagarin himself had done so.

Identification with prior astronauts and space missions is, unsurprisingly, very common in the memoir by Richard Garriott, whose father, Owen Garriott, undertook the Skylab 3 and STS-9 missions as an American astronaut. While Olsen and Ansari clearly identify with spaceflight history, Richard Garriott is in the unique position of having not just a symbolic connection, but a biological connection, to the history of space exploration. He describes growing up listening to the "squawk box" in his house that let his family keep track of his father's missions, speaks of "our" trips to the moon, and writes that "I saw no reason why one day I wouldn't go into space just like my dad and his friends." Unfortunately medical conditions disqualified the younger Garriott from NASA's space program, but he describes turning to private industry, where he partnered with his father for their own private space company, invested in many others (and was asked for an investment by Buzz Aldrin), and participated in many flight experiences with the company Space Adventures, including his mission as a spaceflight participant on a Roscosmos flight ([Garriott and Fisher 2018](#)).

These privately funded space travelers describe themselves as not just fulfilling the dream of going into space, but also helping bring about and normalize private space travel. Their desire to experience what their childhood heroes experienced motivated them to network, invest money, and push the private space industry forward so that spaceflight would open up to them and eventually, perhaps, to private citizens of tomorrow. Their awareness of the history of spaceflight inspired them to want to help create the future of spaceflight.

The influence of humanity's past successes in space is also apparent among those people working in the space tourist industry. Test pilot Orville provides a good case study, since his understanding of his place in the world is rooted strongly in his view of how the past influences the present. One of Orville's heroes is another pilot with ties to Mojave, Burt Rutan. Rutan gained fame in 1986 when his brother Dick Rutan and Jenna Yeager flew Rutan's experimental Model 76 Voyager airplane on an unprecedented flight around the world with no stops and no refueling ([Yeager and Rutan 1987](#)). Rutan admirer Orville has an understanding of human relationships that sees what he calls "mental models" passed down from influential people to their "successors," the only form of immortality he believes a person can experience. Successors are different from fans, he explained, because while the latter "collect facts (and) minutiae," the former "follow in their footsteps . . . And by doing what your

hero did, you now understand the world in the way that they understood it, and thereby take on their mental model." Orville described his understanding of this lineage to me, stating:

... In the case of Burt, he cites Wernher von Braun as his main influence. Von Braun cites Fritz Lang and his films. And Fritz Lang cites Jules Verne. And I would cite Burt. And so, and even though ... one's a writer, one's a filmmaker, one's a rocket scientist, one's an airplane designer, and then we don't even know what I'm going to be yet, their vocation is differentiated from this idea of the way they process and act upon the universe. If that's this mental model, there's bits of Jules Verne that are implicitly inside me.

Orville believed that these mental models couldn't be passed down through reading, but only through direct experience, which, he believed, is why we preserve ancient monuments, do archaeological expeditions, and attempt to experience ourselves what our forebears did. He said people "can read the story of World War II air combat and dogfighting over Europe or whatever, but you don't really know what it means until you sit in the cockpit of a P-51 and you feel the heat and oppressive fumes, and you're strapped in and restrained. And then you know what it was like to be there." Connecting his life in the present with the experiences of those who came before him contextualized what he was doing now and made it clearer how his future was the continuation of the actions, and even the mindsets, of his heroes.

10. Conclusions: *Communitas* and the Stories of the Past

The definition of heritage tourism supplied by the National Trust for Historic Preservation, cited earlier in this article, mentions visiting the places and artifacts of the past, but also the stories. For spaceflight participants and tour providers, at least in the current manifestation of space tourism, visiting objects and places appears far less important than making an effort to share in their heroes' experiences and take part somehow in those amazing stories of adventure and discovery. This may change someday; Andy Weir's *Artemis: A Novel* describes a lunar surface where the Apollo 11 landing site has become a tourist attraction showcasing "the lander, equipment, tools, the commemorative plaque, and even the footprints left behind by the astronauts" and traversed by "giddy folks" carrying souvenirs like Apollo 11 mission patches (Weir 2018). Similarly, archaeologist Alice Gorman works as a heritage consultant and advocates for the protection of culturally significant "space junk," including items left on the lunar surface and abandoned in Earth orbit. Assuming that space travel becomes a normal activity undertaken regularly by human beings, Gorman and Weir are probably correct that the places and objects associated with the early days of space exploration will likely be as historically significant as China's Great Wall or India's Taj Mahal. They may indeed become objects of some future sort of space tourism.

Today, however, space tourism as described by spaceflight participants and providers can be classified as a type of heritage experience in that it very clearly involves nostalgia for the history of exploration and identification with historical personages. Space exploration can also, under some circumstances, be seen as a form of pilgrimage (see Weibel 2016), and, like pilgrimage, can be understood as evoking the phenomenon known as *communitas*. Edith Turner, revisiting work previously done on *communitas* and Catholic pilgrimage with her husband, Victor Turner, defines *communitas* simply as "a group's pleasure in sharing common experiences with one's fellows" (Turner 2012). *Communitas*, which is a "liminoid" phenomenon, occurring in circumstances when a person's normal identity is suspended, is a feeling of connection with other people in the same circumstances, and can stretch across time and space, frequently manifesting during times of shared joy, sorrow, or other intense group emotions. In some circumstances *communitas* makes pilgrimage into something like "a vertical shaft driven into the past, disclosing deep strata of ancient symbols, potent signifiers (sacred symbol-vehicles such as images, paintings, proper names and places)" (Turner and Turner 2011). Certainly for spaceflight participants and businesses involved in space tourism, the past, particularly memories of polar expeditions and early space exploration, is a rich source of meaning.

Peelen and Jansen, who write on the emotive elements of the challenging walking pilgrimage across parts of France and northern Spain known as Santiago de Compostela, emphasize participants' "key identities" and "social relations," creating a strong bond among those walking the Camino. They contend that "(s)haring the same goal and the same difficulties to reach it creates a community of pilgrims" (Peelen and Jansen 2007). When pilgrims on the Camino, or to other pilgrimages like Mecca in Saudi Arabia and Mount Mitoku in Japan, make the decision to seek the sacred and commit to what might be a dangerous voyage, they are participating in an activity with a long history that will presumably stretch into the future. By taking part, these pilgrims actually become part of the site's history and serve as a bridge to connect yesterday to tomorrow through today. They have faith in the future because they are actively creating that future.

Space tourism in its present form, marked by its unapologetic capitalist character and tendency to pull from problematic narratives of European expansion, is as much about the past as it is about the future. Spaceflight participants and the people who are working to become spaceflight providers are trying to develop tourism as adventure, exploration, and human extension. This tourism is understood as following from NASA's brave efforts to put humans on other worlds, but also, perhaps more fittingly, from attempts by 19th and 20th century entrepreneurs, fortune hunters, and voyagers to reach the untouched lands of the South Pole and claim something new for humanity.

Although the term "space tourist" suggests a person of leisure and luxury wasting capital for the novelty of going into space, the tourists themselves generally do not see themselves as fitting this stereotype. Instead they describe the hard work they have undertaken to prepare, including training physically, learning Russian, and even investing, in order to bring their desired opportunities into existence. They and the tour providers understand themselves as participating in the project of creating a human future in space while using the explorers of the past and their own faith in human destiny as lodestars to guide them.

David Valentine asked his NewSpace interlocutors if they would accept a one-way ticket to Mars if they had to live there forever and never return to Earth and most said they would. Valentine believes the NewSpace narratives about the "settlement of space as inevitable and as necessarily revolutionary" should not be dismissed (Valentine 2012). Lisa Messeri writes that her NASA participants, engineers and planetary geologists, uniformly enthusiastic about their work, see the human exploration of space as a way to "connect our terrestrial way of being with a cosmic way of being" (Messeri 2016), an idea that parallels the NewSpace dream. Memoirs and interviews demonstrate that spaceflight participants and space tourism providers see their own perceived part in a larger project of establishing human life in space as something that aligns their goals and roles with the heritage and stories of an elite group of people like themselves: Shackleton and Armstrong, Nansen and Aldrin. Space tourism is heritage tourism because participants are connecting meaningfully to the voyagers and voyages of the past as they seek to extend the boundaries of human exploration. Orville uses the word "tribe" to characterize this connection:

I think the SpaceShipOne program, a hundred years from now, will be viewed as way more apocryphal than we give it credit for now. Because I think the suborbital space flight mission that Virgin is doing may make sense for tourism, but is not particularly relevant for the larger space exploration future. But I think the level of risk ... will become more meaningful in the future in that ... it was the work of a tribe rather than a large nation-size bureaucratic system. And I think ... guys like me are motivated by that concept.

Space workers in general, even those employed by "a large nation-size bureaucratic system," draw on the history of exploration to understand their identities and their roles in creating a future where human settlements beyond Earth are commonplace. A sense of the past helps create a vision for the future and feeling of destiny when and if that envisioned future is brought into reality. The "tribe" described by Orville, however, is more specific, a lineage of pioneers with what he earlier called "explorer/frontier genes" whose ranks can only be reached by those who meet a certain "level of risk."

Test pilots and engineers attempting to bring about a future of safe and routine space tourism frequently risk death, such as in a 2007 incident when an oxidizer flow test conducted by private space company Scaled Composites resulted in an explosion that killed three people and severely injured three others. Seven years later in 2014, tragedy struck again when a Scaled Composites pilot died after experimental craft SpaceShipTwo experienced an in-flight breakup and crashed in the Mojave Desert (Nickels 2017). Creating and perfecting the equipment needed for space tourism is perilous. Space tourism, too, at least in its current form, is far more dangerous than most other types of tourism. Spaceflight participants pay to put themselves at great risk, perhaps for the thrill of the experience or for bragging rights, but also, as their words reveal, in order to claim a rare distinction. Those successors who launch into space or test experimental aircraft are undertaking a rite of passage that, if completed successfully, will allow them to be counted someday among the revered explorers of the past. Aligning themselves with these successful expeditions and those who carried them out also gives today's space workers and spaceflight participants faith. These past endeavors resulted in triumph, and their faith in the inevitability of the larger project they are working to bring about offers reassurance that, despite the real dangers, triumph awaits them too.

Funding: This research was funded by a Catalyst Grant from the Center for Scholarly and Creative Excellence and by the Department of Anthropology at Grand Valley State University, Allendale, Michigan, USA.

Conflicts of Interest: The author declares no conflict of interest.

References

- Ansari, Anousheh, and Homer Hadley Hickam Jr. 2011. *My Dream of Stars from Daughter of Iran to Space Pioneer*. New York: Palgrave Macmillan.
- Badone, Ellen. 2004. Crossing Boundaries: Exploring the Borderlands of Ethnography, Tourism, and Pilgrimage. In *Intersecting Journeys: The Anthropology of Pilgrimage and Tourism*. Edited by Ellen Badone and Sharon Roseman. Chicago: University of Illinois Press, pp. 180–89.
- Billings, Linda. 1997. Frontier days in space: Are they over? *Space Policy* 13: 187–90. [CrossRef]
- Boyle, Alan. 2019. Blue Origin Tweets Picture from Antarctic Expedition, Hinting at Moon Mission. *GeekWire*. Available online: <https://www.geekwire.com/2019/blue-origin-tweets-picture-antarctic-expedition-hinting-moon-mission/> (accessed on 21 September 2019).
- Branson, Richard. 2016. Perhaps Ernest Shackleton, the Great Explorer. How about You? *Twitter*. Available online: <https://twitter.com/richardbranson/status/783669786534252547> (accessed on 21 September 2019).
- Cabbage, Michael. 2001. *Tourist in Space Irks NASA*. Orlando: The Orlando Sentinel, Available online: <https://www.orlandosentinel.com/news/os-xpm-2001-02-25-0102250287-story.html> (accessed on 21 September 2019).
- Cater, Carl. 2019. History of Space Tourism. In *Space Tourism: The Elusive Dream*. Edited by Erik Cohen and Sam Spector. Bingley: Emerald Publishing Ltd., pp. 51–68.
- Cohen, Erik, and Sam Spector. 2019a. Conclusion: Space Travel: The Perilous Promise. In *Space Tourism: The Elusive Dream*. Edited by Erik Cohen and Sam Spector. Bingley: Emerald Publishing Ltd., pp. 263–74.
- Cohen, Erik, and Sam Spector. 2019b. *Space Tourism: The Elusive Dream*. Bingley: Emerald Publishing Ltd.
- Conlon, Roberta. 2015. *XXII Olympiad: Moscow 1980, Sarajevo 1984*. Warwick: Warwick Press Inc.
- Davis, Jason. 2018. How Much Does Space Travel Cost? *NBCNews.com*, NBCUniversal News Group. Available online: <https://www.nbcnews.com/mach/science/how-much-does-space-travel-cost-ncna919011> (accessed on 17 November 2019).
- Day, Dwayne. 2018. And All My Dreams, Torn Asunder: The (Quiet) Collapse of Circumlunar Tourism. *The Space Review*. Available online: <https://www.thespacereview.com/article/3436/1> (accessed on 22 December 2019).
- Dunbar, Brian. n.d. Arctic Mars Analog Svalbard Expedition. NASA. Available online: https://www.nasa.gov/mission_pages/mars/news/amase/ (accessed on 22 September 2019).
- ESA. n.d. 'I Am NOT a Tourist.' European Space Agency. Available online: https://www.esa.int/Our_Activities/Telecommunications_Integrated_Applications/TTP2/I_am_NOT_a_tourist (accessed on 21 September 2019).
- Foust, Jeff. 2018. Still Waiting on Space Tourism after All These Years. *The Space Review*. Available online: <http://www.thespacereview.com/article/3516/1> (accessed on 22 December 2019).

- Garrett-Bakelman, Francine E., Manjula Darshi, Stefan J. Green, Ruben C. Gur, Ling Lin, Brandon R. Macias, Miles J. McKenna, Cem Meydan, Tejaswini Mishra, Jad Nasrini, and et al. 2019. The NASA Twins Study: A Multidimensional Analysis of a Year-Long Human Spaceflight. *Science* 364: eaau8650.
- Garriott, Richard, and David Fisher. 2018. *Explore/Create: My Life in Pursuit of New Frontiers, Hidden Worlds, and the Creative Spark*. New York: William Morrow.
- James Gray, . 2019, *Ad Astra*. Burbank: Walt Disney Studios Motion Pictures.
- Huntford, Roland. 2005. *Nansen: The Explorer as Hero*. New York: Abacus.
- Journey to Antarctica. n.d. Journey to Antarctica, National Geographic Expeditions. Available online: <https://www.nationalgeographic.com/expeditions/destinations/polar/ocean/antarctica-cruise/> (accessed on 22 September 2019).
- Laing, Jennifer, and Warwick Frost. 2019. Exploring Motivations of Potential Space Tourists. In *Space Tourism: The Elusive Dream*. Edited by Erik Cohen and Sam Spector. Bingley: Emerald Publishing Ltd., pp. 141–61.
- Lansing, Alfred. 2015. *Endurance: Shackleton's Incredible Voyage*. New York: Basic Books.
- Linck, Evan, Keith W. Crane, Brian L. Zuckerman, Benjamin A. Corbin, Roger M. Myers, Sharon R. Williams, Sara A. Carioscia, Rodolfo Garcia, and Bhavya Lal. 2019. *Evaluation of a Human Mission to Mars by 2033*. Alexandria: The IDA Science and Technology Policy Institute.
- Maher, Neil M. 2017. *Apollo in the Age of Aquarius*. Cambridge: Harvard University Press.
- Maher, Neil M. 2018. Grounding the Space Race. *Modern American History* 1: 141–46. [CrossRef]
- Meredith, Pamela L., and Marshall M. Lammers. 2012. Commercial Spaceflight: The “Ticket to Ride”. *The Air and Space Lawyer* 25: 4–8.
- Messeri, Lisa. 2016. *Placing Outer Space: An Earthly Ethnography of Other Worlds*. Durham: Duke University Press.
- National Trust for Historic Preservation. 2015. [Preservation Glossary] Today's Word: Heritage Tourism. Available online: <https://savingplaces.org/stories/preservation-glossary-todays-word-heritage-tourism#.XYegOfxKhHQ> (accessed on 17 June 2015).
- Newell, Catherine L. 2013. The Strange Case of Dr. von Braun and Mr. Disney: Frontierland, Tomorrowland, and America's Final Frontier. *The Journal of Religion and Popular Culture* 25: 416–29. [CrossRef]
- Nickels, Liz. 2017. Memories of SpaceShipOne. *Reinforced Plastics* 61: 83–86. [CrossRef]
- Norman, Alex, and Carole M. Cusack. 2015. *Religion, Pilgrimage, and Tourism*. Abingdon: Routledge, Taylor & Francis Group.
- Olsen, Gregory H. 2009. *By Any Means Necessary: An Entrepreneur's Journey into Space*. Princeton: GHO Ventures, LLC.
- Peelen, Janneke, and Willy Jansen. 2007. Emotive Movement on the Road to Santiago de Compostela. *Etnofoor: Antropologisch Tijdschrift* 20: 75–96.
- Robinson, Michael. 2006. *The Coldest Crucible: Arctic Exploration and American Culture*. Chicago: The University of Chicago Press.
- Schwartz, John. 2007. *Richard Garriott, Collector of Space Memorabilia, Set to Blast Off*. New York: The New York Times, Available online: <https://www.nytimes.com/2007/10/03/health/03iht-03collector.7735427.html> (accessed on 27 September 2019).
- Space Daily. 2019. No Nausea for Beth Moses, Virgin's Space Tourist Trainer. *Space Daily*. Available online: http://www.spacedaily.com/reports/No_ausea_for_Beth_Moses_Virgins_space_tourist_trainer_999.html (accessed on 22 September 2019).
- Stuster, Jack. 2010. *Behavioral Issues Associated with Long-Duration Space Expeditions: Review and Analysis of Astronaut Journals Experiment 01-E104 Final Report*. Houston: Johnson Space Center.
- Turner, Edith L. B. 2012. *Communitas: The Anthropology of Collective Joy*. New York: Palgrave Macmillan.
- Turner, Victor Witter, and Edith L. B. Turner. 2011. *Image and Pilgrimage in Christian Culture*. New York: Columbia University Press.
- Valentine, David. 2012. Exit Strategy: Profit, Cosmology, and the Future of Humans in Space. *Anthropological Quarterly* 85: 1045–67. [CrossRef]
- Webber, Derek. 2013. Space Tourism: Its History, Future and Importance. *Acta Astronautica* 92: 138–43. [CrossRef]
- Weibel, Deana L. 2015. 'Up In God's Great Cathedral': *Evangelism, Astronauts, and the Seductiveness of Outer Space*. Edited by Michael Di Giovine and David Picard. Farnham: Ashgate Publishing, pp. 233–56.
- Weibel, Deana L. 2016. Pennies from Heaven: Objects in the Use of Outer Space as Sacred Space. In *Touching the Face of the Cosmos: On the Intersection of Space Travel and Religion*. Edited by Paul Levinson and Michael Waltemathe. New York: Fordham University Press, pp. 33–44.

Weibel, Deana L. 2019. Astronauts vs. Mortals: Space Workers, Jain Ascetics, and NASA's Transcendent Few. *The Space Review*. Available online: <http://www.thespacereview.com/article/3690/1> (accessed on 27 October 2019).

Weir, Andy. 2018. *Artemis: A Novel*. New York: Broadway Books.

Yeager, Jeana, and Dick Rutan. 1987. *Voyager*. New York: Alfred A. Knopf.



© 2020 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).