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Framing Space: A Popular Geopolitics of American Manifest Destiny in Outer Space

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This paper examines how ‘ways of seeing’ landscape, as practised within the little-known American astronomical art community, can be used to examine the popular geopolitical scripting of an American manifest destiny in outer space. A significant body of work in critical geopolitics has sought to recognise the way in which culturally manifest representations of space and place, together with embedded visual practices, can reproduce and elucidate the construction of geographical imaginations. Despite this, cultural representations of outer space have frequently been overlooked in readings of American popular, geopolitical discourse and associated geographical understandings. As a response to this lacuna, this paper interrogates how visual motifs of an American manifest destiny, developed in nineteenth-century American romanticism, have been mobilised through American astronomical art to explain and popularise conceptions of outer space that invite American human space exploration. By way of conclusion, the paper stresses how the inscription of outer space under the rubric of an American manifest destiny continues to frame the way in which the American space programme, and by extension American geopolitical and geographical imaginations, can be understood today.

INTRODUCTION

In 1984, the *International Association of Astronomical Artists* organised a gathering of American astronomical¹ space artists in Death Valley, California. The Death Valley meeting, as space journalist Andrew Chaikin reported,²

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was designed to celebrate and further inspire an imaginative exploration of the 'unknown' worlds human beings might, in the future, set foot upon; that is, to look beyond the established horizon of the space programme itself. In the process, the participants at this conference were to look time and again to the past for inspiration. The artist William Hartmann, for example, compared himself to "Thomas Moran, who journeyed into the American West in the nineteenth century . . . Moran's views of Yellowstone made an indelible impression both on the public and awed Congress."³ Some years later astronomical artist Ron Miller, who also attended the Death Valley meeting, remarked, "I hope that I, and my fellow astronomical painters, will be fulfilling the very important function that several of America's Hudson River School painters did in the late 19th century . . . [for whom] preserving these special and amazing places . . . [just as] romantic images of the American west's fantastic landscapes made them both real and unforgettable. I hope that I can do the same for our neighbors in space."⁴ What drew these artists to an earlier, quintessentially American genre? How did the content, the style and the iconic imagery of these nineteenth-century landscape paintings become a resource for a visual scripting of an as yet unknown future?

Nineteenth-century American landscape painting is frequently associated with a particular idiom, 'the American sublime'. The broader concept of the sublime has long been debated by philosophers, writers and artists alike and is most readily understood as referring to an inexpressible and emotionally uplifting mood of awe, wonder and the all-powerful.⁵ For artists, writers and scholars writing during the eighteenth and nineteenth century, not least Thomas Moran, this mood unfolded through a kind of emotionally charged, transcendental resonance between God as the supreme moral and omnipotent being, the absolute moral ideals of the individual and an indiscernible experience of the vastness and immensity of nature. While the sublime forms an accepted part of the intellectual milieu of the arts and humanities, its relationship to identity narratives, state polity and geopolitics remains relatively underdeveloped. And yet, as this paper will demonstrate, the presence within astronomical art of key motifs of the American landscape sublime suggests how this aesthetic idiom can and does intersect with the articulation of popular geopolitical imaginations and, by extension, the scripting of a geography of global space.

In working towards this conceptual objective, this paper draws upon the 'critical geopolitics problematic' epitomised by the work of Gearoid O Tuathail, enabling an approach to the American sublime as a "problematic of writing the global",⁶ that is implicated in the way global space is produced, disseminated and contested.⁷ The critical geopolitics literature provides a breadth of methodological cases that problematise cultural articulations of the geography of global space, as well as those of foreign policy practitioners or formal geopolitical texts.⁸ Joanne Sharp's work on 'popular geopolitics' has been particularly important in regard to the former.

Sharp⁹ draws attention to the way popular geographical imaginations, articulated through popular culture, are mobilised by political actors to inscribe and simplify often complex relations between nations, cultures, identities, places and ideologies. Outer space is not exempt from these tactics and strategies.

Popular geopolitics approaches have been used to describe and problematise geopolitical scriptings across a range of cultural objects, from cartoons, magazines, films, photography, and photojournalism.¹⁰ And yet, within these approaches there is a paucity of studies dealing with the popular geopolitical connotations of the interplay between geographical and what might be termed “cosmographical” imaginaries. Meanwhile, recent critical geopolitics approaches that have addressed diverse visual practices, spectacles and emotions have prompted a more sustained consideration of non-textual, performative and affective rehearsals of geopolitical practice.¹¹ Taking its cue from these empirical and conceptual agendas, this paper examines American astronomical art to disclose how emotionally charged articulations of the American landscape sublime can inform our understandings of American popular geopolitical imaginations. Post-war American astronomical art provides a valuable tool to examine not only the articulation of America’s place in the world and beyond, but how popular geopolitical imaginations are readily produced, disseminated and consumed through visual codes and aesthetic motifs. This paper focuses in particular on the astronomical artwork of Chesley Bonestell whose planetary landscape representations during the mid-1950s played a key role in locating outer space within American popular geopolitical imaginations. Bonestell’s legacy is shown to have had a profound impact on the development of American astronomical art and continues to inform the manner in which outer space is rendered meaningful within American popular and practical geopolitical discourse.

In undertaking this task, this paper has a three-fold strategy. First, it will explain in more detail the mode of transcendental resonance between religion, morality and nature that characterises the American *landscape* sublime. It briefly examines how American landscape artwork produced in the nineteenth century fostered an emotionally uplifting way of visually performing American manifest destiny that was both exceptionalist and eschatological. Second, the paper will examine how this popular geographical imagination of the American sublime animated American astronomical art.¹² In so doing, the paper addresses the practical geopolitical significance of astronomical art, whereby politicians and NASA increasingly draw upon these geographical imaginations to construct seductive geopolitical scripts that serve to explain, naturalise and reinforce America’s exceptional destiny. Here, I examine, first, the career of the influential astronomical artist, Chesley Bonestell who, during the 1950s, produced a particularly influential way of seeing outer space under the rubric of American manifest destiny by

employing similar aesthetic motifs and visual codes to the American landscape sublime tradition. Then, I address the development of astronomical art in the post-Apollo era, and the continued pervasiveness of a 'Bonestellian' vision of space exploration that locates outer space as the next chapter in the project of American manifest destiny. Finally, the paper concludes with some comments about the continued geopolitical relevance of the interplay between geographical and cosmographic imaginations to an understanding of American manifest destiny, popular geopolitics and nation-building.

FRAMING AMERICAN MANIFEST DESTINY: LANDSCAPE PAINTING IN AND OF THE AMERICAN WEST

American landscape painting in the nineteenth century is frequently grouped into two stylistically interconnected though geographically divergent schools. The first, the so-called 'Hudson River School', is characterised by artistic depictions of the eastern settlements and their wild hinterland and is exemplified by artists such as Thomas Cole (1801–1848), Edwin Church (1826–1900) and Asher B. Durand (1796–1886). In contrast the second, later grouping, the 'Rocky Mountain School', consists of artistic renditions of the far West from artists seemingly influenced by the Hudson River School. Prominently cited within this second group are the artists Thomas Moran (1837–1926) and Albert Bierstadt (1830–1902).¹³ From the 1870s onwards these artists regularly accompanied government-funded expeditions across the frontier of the United States, working alongside photographers to record these new lands for a fascinated public and Congress back east. It is this second group, and in particular Thomas Moran, from whom many American astronomical artists draw a lineage.

Born in England in 1837, Thomas Moran migrated to the United States aged seven in 1844. During his early years as a painter Moran was influenced greatly by the European romantic sublime tradition, being particularly drawn to the landscape work of J. M. W. Turner and his leading intellectual promoter, the celebrated aesthete John Ruskin.¹⁴ Joni Kinsey suggests that Moran and other American landscape artists were drawn to Turner and Ruskin's approach because they had moved away from a European aesthetics concerned with sensuous or acceptable taste, that was "suspect and unfamiliar in the United States", and instead were concerned with "the conjunction of art with morality, religion and nature" through grand ideals.¹⁵ For Ruskin, art's role was to communicate the moral order of the universe through nature in a way that was religiously orientated, so that the greatest landscape art pointed to the "faultless, ceaseless, inconceivable, inexhaustible loveliness, which God had stamped upon all things."¹⁶ Following Turner and Ruskin, Moran increasingly opposed mimetic representation and strove to articulate a Ruskinian emotional impression, whereby the vast

landscapes of the American West were read as a kind of 'holy text' that conveyed the immanence of the absolute perfection of God in nature. Overwhelmingly the word used to describe this sacred, as well as emotionally passionate and uplifting response, was 'sublime'. Indeed, quoting Turner scholar Andrew Wilton, art historian Joni Kinsey suggests, "Wilton's observations of Turner could be applied equally to the younger artist: He set great store by any personal experience of the 'Sublime' – indeed, it was only through such experience that the artist could hope to communicate grand ideas to the public."¹⁷

Moran's emotionally uplifting evocation of this Christianised sublime in the American West was influenced by a number of techniques that were deployed by European painters such as J. M. W. Turner, as well as the earlier American artists of the Hudson River School. Of particular significance was the use of light effects to convey an impression of natural grandeur and awe. The word 'Luminist' is, in fact, frequently applied to nineteenth-century American landscape styles,¹⁸ not least the Rocky Mountain School. Moran's work, for example, often centred upon mountains acting as beacons of light or canyons suffused in an incandescent radiance. In so doing, these painters approached the luminous imagery evident in Judaeo-Christian mythology, where light is correlated to divinity and hope, whereas darkness corresponds to wrath and evil.

The relevance of such biblical narratives to American manifest destiny is, perhaps, most explicit in the artwork of Thomas Cole, Asher Durand and Edwin Church, who frequently used light to suggest teleological narratives of American manifest destiny. Here, the spread of light over darkness accompanied the civilising passage of Christian pastoral culture into the wilderness (Edward Casey,¹⁹ for example, cites Thomas Cole's *The Oxbow*, 1836, in this regard). And yet, neither Moran nor Bierstadt used light in this way in their depictions of the American West. Indeed, their frontier-scapes had to be set without their pastoral 'Other', the far-away rural scenes of the eastern seaboard. Nevertheless, light effects are strikingly pervasive in both the work of Moran and Bierstadt where, as Novak suggests, light was used rather to augment a process of "spiritual transmutation" often by "dissolving form", creating, "diffusive, vaporous qualities" where, "light, moves, consumes, agitates and drowns",²⁰ suggesting possibilities for spiritual transcendence from the terrestrial to the celestial. A dramatic iteration of the American, Christianised sublime appears when terrestrial forms with precise material detail, such as hilltops, blur into the vast crystalline or transparent light of the radiant sky, evoking the transition from worldly nature to spiritual wonder and awe. Novak later discerns within these sublime motifs a parallel with early American evangelical readings of the Book of Revelation, where the apocalyptic power of God's creation was to be revealed.²¹ It is this revelatory tenor that reproduces the sentiment of American manifest destiny, through the belief that America was chosen by God whose judgment

was close at hand, thus augmenting what Novak terms “the American’s sense of his [sic] own unique nature, his unique opportunity [which] could indeed foster a sense of destiny which, when it served to rationalise questionable acts with elevated thoughts, could have a darker side.”²²

One of the most compelling examples of the Rocky Mountain School’s reading of the American West as a holy text, and by extension an emblem of American manifest destiny, was Moran’s *Mountain of the Holy Cross* (1875). At first glance, the painting seemingly imitates the deliberate symbolism of German Romanticism, in particular Caspar David Friedrich’s *The Cross in the Mountains* (1808). And yet, unlike Friedrich’s piece, the cross Moran painted on the mountainside was, in fact, an entirely natural phenomenon. The rock fissures on the apex of this Colorado mountain were arranged in a cross that was unmistakable as such when packed with light snowfall. In his depiction, Moran predictably used dramatic light effects to highlight the cross, while also exaggerating the sense of vastness and scale of the mountain, not least by employing a reverential perspective and reducing the height of the woodland in the mid-ground. This evoked a sense of foreboding and trepidation but also the outstanding divinity of the mountain. In this way, Joni Kinsey suggests, both the actual mountain and Moran’s rendition became nationalistic icons of the divine redemption of American exceptionalism and destiny with the Godhead, particularly so in the suffering and anguish of the post-Civil War period.²³ As Samuel Bowles wrote in his book *Switzerland of America* (1869), it is as “if God has set His sign, His seal, His promise there – a beacon upon the very center and height of the continent to all its people and all its generation.”²⁴

The attempt to reconcile the individual, the nation, and God, through nature was also practiced through what art historian Albert Boime terms the ‘Magisterial Gaze’.²⁵ That is, an emotionally uplifting way of seeing the landscape from an elevated perspective. Rocky Mountain School painters, including Moran, frequently employed this technique. While such a perspective is absent from *The Mountain of the Holy Cross* (1875), which employs a much more reverential upward gaze towards the divine, it is visibly discernable in two of his most famous other works in which the viewer assumes a Godlike gaze over a craggy panorama, *The Grand Canyon of the Yellowstone* (1872) and *The Chasm of the Colorado* (1873–1874). Boime explains how this gaze underpins American manifest destiny: “[The] American experience of the sublime in the landscape occurred on the heights. The characteristic viewpoint of contemporary American landscapes traced a visual trajectory from the uplands to a scenic panorama below This Olympian bearing metonymically embraced past, present, and future, synchronically plotting the course of empire. . . [and] remain a fundamental component of the national dream.”²⁶ Hence, he suggests, “It is this systematic projection of the unlimited horizons as a metonymic image of America’s futurity that makes this body of material unique in its geographical, national, and temporal setting.”²⁷

It should be noted, however, that appeals to this God-like perspective as a means of organising space and time around unifying visions of humanity were not unique to American, romanticist artwork. For example, Dennis Cosgrove provides an in-depth genealogy of how “omniscient and synoptic” Apollonian perspectives²⁸ have frequently figured in unifying, eschatological visions. These can be found in medieval Atlases of the globe that articulate a sense of Christian mission, as well as NASA’s Apollo photographs, used to utopianise global internet-age connectivity. This Olympian perspective also features prominently in O’Tuathail’s deconstructions of geopolitical discourse-power-knowledge, whereby a disembodied “geopolitical gaze” evokes a Cartesian perspectivism so as to render “geography spaceless and history timeless”. In consequence, “both are taken to be transcendental coordinates of the universal nature of things”²⁹; essentialising the histories and destinies of peoples, dramas and places, and, in this case, the American nation. Perhaps what distinguishes the eschatological connotations of the Olympian gaze in the case of American Romanticism is that it appeared against the backdrop of a web of rhetorical connections between divine immanence and religious and national exceptionalism and destiny, from Puritanical divine providence, to Jeffersonian idealism and, later, American manifest destiny (see Anders Stephenson’s study of American manifest destiny³⁰).

Accordingly, it is across these inter-related visual registers of light, composition, symbolism and gaze that the American landscape artwork of the Rocky Mountain School was able to locate the West in the American geographical imagination, through Judaeo-Christian mythology and European Romanticism, as the apotheosis of American exceptionalism and manifest destiny. By encouraging the idea that America’s frontier geography could be read as an exceptionally holy text, often accompanied by a God-like gaze, these painters reproduced the American West as not just a symbol of the unique destiny of the American nation and its Christian population but as its divine verification. And, it is against the backdrop of these powerful narratives that these works were viewed and appreciated by the American public and Congress. As Joni Kinsey puts it, “[Through] a world of unspeakable beauty and limitless power. . . [they] made the West an indelible part of the American consciousness” and in so doing projected “Christian doctrine onto nature, and by extension onto nationalism.”³¹

Indeed, the nationalistic implications of this art were not lost on Congress, who purchased two of Moran’s most well-known paintings, *The Grand Canyon of the Yellowstone* (1872) and *The Chasm of the Colorado* (1873–1874), to display in the Capitol building. Equally, Moran’s paintings of the West and those of his contemporaries were regularly disseminated through popular magazines, brochures, exhibitions and advertisements to naturalise, justify and promote westward settlement, railroads and tourism. They were even used as a part of the lobbying process to Congress to promote

the creation of the first national park at Yellowstone.³² As the *New York Times* reported, after Congress passed the first National Parks bill for Yellowstone, “Perhaps, no scenery in the world surpasses for sublimity that of the Yellowstone Valley; and certainly no region anywhere is so rich, in the same space, in wonderful natural curiosities . . . [let’s] gaze on picturesque splendors only to be seen in the hearts of the American Continent.”³³

Within critical geopolitics approaches, the universalisation of articulations of global space, organised through the geographical imagination, is understood to be synonymous with the practice of formal and popular geopolitics. As Gearoid O Tuathail (1996) explains, “Geopolitics . . . is precisely about moral claims and deep interpretations that postulate a fixed and homogenous essence, an underlying law, a relentless continuity to international politics.”³⁴ American manifest destiny, as envisioned through the ‘Rocky Mountain School’, provided exactly that underlying law and continuity to the geography of global space. In its broadest sense, this process was enacted through a tautological logic, whereby artists journeyed into the American West carrying with them Puritanical narratives of the exceptional destiny of America in the world, which they subsequently confirmed through a particular way of seeing and representing the landscapes of the American West. These artists provided a definable, recognisable and repeatable aesthetic framework that translated the vast frontier landscapes of the American West into a stage upon which American exceptionalism and manifest destiny could be performed. And, it is toward a partial consideration of their legacy that this paper will now turn.

THE EARLY SPACE AGE AND THE ARTWORK OF CHESLEY BONESTELL

The re-vitalisation of sublime aesthetic frameworks in the American popular geopolitical imagination was inaugurated largely through one man’s fascination and talent for painting outer space: Chesley Bonestell (1888–1986). Bonestell’s rise to eminence began in 1952, when the architect turned film effects designer and part-time American space artist began working with the acclaimed rocket scientist Werner von Braun to produce illustrations for a *Collier’s Magazine* series titled the ‘Conquest of Space’. The series depicted as-yet-unknown extra-terrestrial landscapes, worlds and spacecraft to illustrate von Braun’s technical visions of American human space exploration.³⁵ Many subsequent American astronomical artists, including those present at the Death Valley meeting such as Ron Miller and William Hartmann, see Bonestell, and in particular, the *Collier’s* series, as the reference point for their own approach to astronomical art. Von Braun and Bonestell’s work reflected a shared passion for the immanent prospects of human space-travel to other worlds and, in Bonestell’s case, a particular interest in conveying this

fascination to others through the image. The two men themselves recognised how their interests and skills complemented each other: for example Bonestell is quoted in admiration of von Braun's "intellect, romanticism and modesty"³⁶ while von Braun spoke of how he "learned to respect, nay fear, this wonderful artist's obsession with perfection."³⁷

Congress and President Eisenhower, however, seemed much more interested in von Braun's rocket technology for its strategic value in delivering a nuclear warhead or a surveillance satellite.³⁸ Nevertheless, together von Braun and Bonestell looked to augment popular support for space travel to help persuade the American government of the merits of a more ambitious human space travel programme. The space historian Howard McCurdy explains how Bonestell's images played a vital role in this effort to promote space travel: "No artist had more impact on the emerging popular culture of space in America than Chesley Bonestell . . . Bonestell did for space what Albert Bierstadt and Thomas Moran accomplished for the American western frontier . . . Bonestell's paintings took viewers to places they had never been before . . . [and so] create a sense of awe and wonder . . . he used light and shadow, as artists had done with the American west a century earlier, to portray space as a place of great spiritual beauty. Through his visual images, he stimulated the interest of a generation of Americans and showed how space travel would be accomplished."³⁹ Accordingly, as many space art commentators have observed, Bonestell's lunar surfaces plainly resemble the intricate craggy rock formations of, for example, the Rocky Mountains that are so indicative of the American sublime tradition.⁴⁰ The question that arises is: how did Bonestell's images work to imaginatively locate outer space, and in particular the moon (as will be examined later), under the same nationalistic and moralising rubric as the frontier-scapes of the American West? How did these images popularise travel to these otherworldly landscapes as the next, logical chapter in American exceptionalism, futurity and destiny?

While other artists, such as Charles Bittering in *National Geographic* (1939) and Lucian Rudaux in the book *On Other Worlds* (1937),⁴¹ had attempted earlier, realistic depictions of outer space and space travel to accompany non-fiction works, the widespread popularity of Bonestell's images mark the significance of his work. Bonestell's influence upon American popular culture was, in fact, much broader than space – as an architect he helped design the iconic Chrysler building in New York City, elements of the Supreme Court in Washington DC, and also worked on the background artwork for such acclaimed films as *Citizen Kane* (1941) and *the Hunchback of Notre Dame* (1939).⁴² Bonestell's talent for accurate, detailed illustration made him well respected in these visual industries long before he actively pursued 'realistic' astronomical art; however, it was astronomical art that made him known to the public. This career shift began in the 1940s when he published a series of astronomical illustrations in *Life*

magazine. Many of these would be re-published in the hugely popular non-fiction introduction to space travel, *The Conquest of Space* (1949), written by German expatriate and ex-founder (alongside Werner von Braun) of the German Rocket Society, Willy Ley. Bonestell's ties to Hollywood then led him to work on the background matte artwork and effects for the non-fiction space movie, *Destination Moon* (1950) and later *The Conquest of Space* (1955), as well as the sci-fi epics *When Worlds Collide* (1951) and *The War of the Worlds* (1953). The first film and the latter two proved highly popular worldwide and won Academy Awards for their special effects.⁴³

Above and beyond the renown afforded by these space-related films and books, it was the *Collier's* series that was to prove most effective in disseminating Bonestell's particular way of seeing outer space, not least because *Collier's* magazine was placed in the top ten of American magazines with a weekly readership of over three million people.⁴⁴ As space art reviewers Ron Miller and Fred Durrand suggest, "The *Colliers* articles were the beginning of the Golden Age of spaceflight – that period during which the American public showed a fascination, enthusiasm and support for space-flight it had never shown before or since – the aeronautical equivalent of the aviation craze of the 1920s and 1930s."⁴⁵ Bonestell's work in *Collier's* overshadowed that of the two other artists engaged, Rolf Kelp and Fred Freeman, becoming irreducibly associated with *Collier's* eight-part story of space exploration, from the construction of a space station to a moon base and eventually a Mars expedition.⁴⁶ While Kelp and Freeman prepared space-station cutaways and rocket ships, Bonestell depicted vast lunar vistas flanked by craggy mountains, with moon bases or iconic spinning space stations floating high above the Earth (see Figure 1).

The *Collier's* series also led to three further popular, non-fiction books illustrated by Bonestell, *Across the Space Frontier* (1952), *Conquest of the Moon* (1953) and *Exploration of Mars* (1956), as well as several commissions for large murals by major US art galleries and museums.⁴⁷

In the aftermath of the *Collier's* series, the Walt Disney Company recruited Ley and Von Braun, amongst other space boosters, to create a series of animated television shows that told the story of outer space. The shows were partly intended to attract popular attention around the 'Tomorrowland' element of the soon-to-be-opened icon of American popular mythology, the Disneyland theme park in Anaheim, California (which opened in 1955). Bonestell's images were used as the basis for many of the images, animations and cartoons that were employed in the Disney television series and, indeed, were to influence design themes in the 'Tomorrowland' exhibit itself.⁴⁸ In consequence, as acclaimed space writer Arthur C. Clarke explains, Bonestell "electrified a generation of teenage space enthusiasts, aspiring writers, physicists, artists and engineers."⁴⁹

Bonestell's vision of outer space is all the more distinctive because of the contrast it struck with contemporaneous images of outer space. During

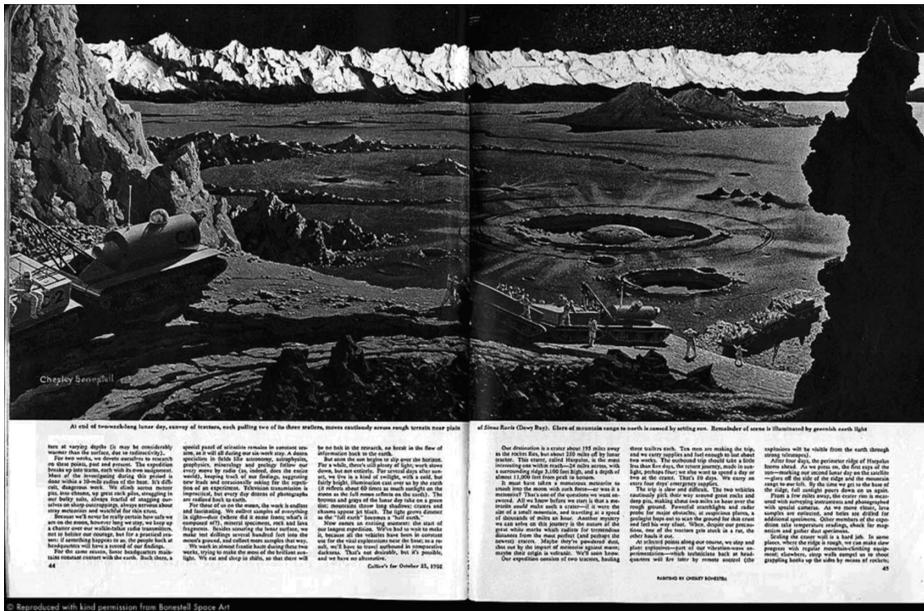


FIGURE 1 *Moon Tractors* (1952) by Chesley Bonestell, published in Collier's magazine 25 October 1952. Images reproduced with the permission of Bonestell Astronomical art ©.

the 1950s, Hollywood sci-fi regularly constructed dystopian images of outer space as another setting for the movie horror genre; it was a fearful realm full of warmongering aliens.⁵⁰ Despite Bonestell's work on films such as *War of the Worlds*, his non-fictional representations of outer space provided an alternative, wherein outer space could be habituated as the utopian or heroic destiny of America and humanity. As a result, the geopolitical connotations of Bonestell's romantically uplifting vision of space exploration resists equivalent interpretation as a metaphor for Cold War anxieties, such as nuclear armageddon, anti-communism or the de-humanising effects of technoscience.⁵¹ Instead of evoking these anxieties directly, Bonestell's detailed images presented a much more comforting and structured view of the universe and the progressive role of technoscience, which may well have helped to allay such Cold War anxieties. The rocket, for example, was readily familiarised as an emblem of national futurity and progress instead of war and destruction. Augmenting this sense of order was a frame of authority: Bonestell's vision was presented as a factually determinate, even quasi-scientific, estimate of what these other worlds would look like and how space travel would take place. For example, as Willy Ley explains of Bonestell's art in the *Conquest of Space* book of 1949, "[They] should not be considered 'artistic conceptions' in the customary sense of the phrase . . . but a picture which you might obtain if it were possible to get a very good camera with perfect color – true film into the proper position."⁵² And yet it

is precisely this frame of objectivity that makes Bonestell's work all the more geopolitically significant, as such neutrality and detachment belied its innate equivalence to the ideologically and morally charged approaches of the Rocky Mountain School and American Romanticism.

These similarities are rendered all the more remarkable because Bonestell himself was a self-declared atheist who no doubt would have rejected the thought that his work was acquiescing, even if inadvertently, with the explicitly evangelical idiom of American landscape art. And yet, as many commentators on space art rightly acknowledge,⁵³ the implicit inter-textuality between Bonestell's astronomical art and the geographical imaginations reproduced in artwork from 'The Rocky Mountain School' is central to disentangling its socio-cultural context, popular reception, and, in turn, its geopolitical significance. Two inter-related visual incongruities in Bonestell's representation of the Moon help us to approach the more implicit, popular geopolitical connotations present in his work. The first relates to the lunar landscape and the 'problem' of depth. After walking on the moon the Apollo astronauts repeatedly reported their problems judging distance, depth and scale on the featureless and bland lunar landscape.⁵⁴ By contrast, Bonestell employed an Olympian perspective that conveyed an immediate sense of scale, vastness and immensity. And yet, given Bonestell's contact with leading space scientists and interest in astronomy he would have likely known that judging scale on the relatively featureless lunar surface would have been much more difficult. When asked about his use of perspective, Bonestell explained how he "used the device of near rocks and distant mountains, separated by a plain glimpsed beyond the foreground, to give the impression of depth and distance."⁵⁵ More inconspicuously, and echoing Bierstadt, Bonestell often placed tiny human figures in the foreground of his paintings to heighten a sense of scale and immensity. The importance of this enhanced sense of depth from an elevated perspective is that it inherently approaches many of the techniques found in the Rocky Mountain School (and American Romanticism generally). To re-iterate an earlier point, this Olympian perspective had been long employed to correlate natural feelings of terrestrial transcendence, uplift and wonder within moral and religious frameworks.⁵⁶ Moreover, as Boime acknowledges,⁵⁷ this Olympian perspective also had important geopolitical connotations in the context of American culture, providing a sense of the artist as occupying a 'heightened position', surveying the past, present and future horizons of humanity itself.

The second visual incongruity concerns the aesthetic implications of Bonestell's fondness for an innately 'Olympian gaze'. That is, Bonestell required a strong foreground and background in his paintings in order to provide a sense of perspective that otherwise would have been sorely lacking if he had indeed depicted a rather flat and smooth surface of the kind that Apollo astronauts, in fact, reported. As Bonestell himself discloses, his

decision to depict lunar mountains as craggy and sharp was a necessary by-product of his use of an Olympian perspective. In a 1977 interview Bonestell attempted to explain why he took the decision to paint the lunar landscape the way he did, despite the fact he almost certainly knew it was much smoother: "I don't think it [the Moon] would have looked very interesting, although it would have been correct. I tried to make it just as dramatic as I could."⁵⁸ Bonestell later said on the same subject, "Even if they're wrong, they did influence young people and got them interested in astronomy, so they at least served that purpose."⁵⁹ Here, Bonestell reveals that underneath his ostensive realism he was acutely aware of how different landscapes might evoke different sentiments and indeed emotions in his audience. By painting in this romanticist style he sought to engage an audience's familiar expectations of what a seductive and awe-inspiring frontier landscape should look like. Bonestell was drawn to craggy, alpine-esque scenery framing vast planes as the most romantic, alluring, uplifting and seductive landscape to inspire space travel. And yet, it must be noted, Bonestell himself never formally acknowledged the influence of the Rocky Mountain School, despite the fact many of these earlier artists were hugely influential in the founding of the San Francisco art community⁶⁰ where Bonestell grew up and developed his technique. Conceivably, this decision might reflect his unease with this earlier, overtly religious tradition of landscape art.

Beyond these aesthetic techniques, the text in *Colliers* reinforces the popular, geopolitical connotations implicit in Bonestell's images, as Americans were told that, "Man will conquer space soon", first creating a space station, then a moon colony and, in time, undertaking a Mars expedition.⁶¹ The contours of this popular roadmap, as illustrated by Bonestell, with its focus upon human colonisation, predominated over and above alternative 'non-human' activities in outer space, such as the use of scientific probes and military satellites. The innate similarities to nationalistic mythologies of American manifest destiny in the West, where frontier exploration went hand in hand with physical settlement, were strikingly visible in these popular visions of space travel. Not surprisingly, countless replicas of Bonestell's frontier vision of space exploration appeared across the world during the pre-Apollo years, including innumerable books for children. As Miller and Durrand explain: "The Collier's spacecraft, and even the artwork itself, were copied and plagiarized endlessly. If anyone had to illustrate a rocketship it had to look like a Collier's rocket or it just wasn't right. They were the standard."⁶²

Bonestell's images of outer space implicitly coordinated outer space as the 'high' or 'new' frontier in a purportedly unified American imagination so as to help familiarise an otherwise ominous environment around a nationalistic mythology. Jonathan Smith explains how such frontier landscapes are integral to the articulation of American identity, since "it is of course, impossible to pretend that the American people sprang from common ancestors,

from a mythic tribe in the midst of antiquity, as so many other nations do, and so it is necessary to define the group by its relation to a common territory [the frontier].”⁶³ By familiarising outer space in these terms, Bonestell naturalised the American ‘frontier’ paradigm of human space exploration as not just the most likely course of the space age but as part of the performance of American national identity in the Cold War. Such a mobilisation of the popular cosmographical imagination dovetails with Sharp’s acknowledgement of how popular geographical imaginations are deployed by interest groups to augment national mythologies of belonging that familiarise new and threatening situations and naturalise certain political assumptions through “accepted models, metaphors and images”⁶⁴; thereby instilling a sense of pre-destiny to foreign policy decisions and outcomes.

And yet, despite its popularity, Bonestell’s work, even at its peak of popularity, was never afforded the status of serious Fine Art either by art critics or Bonestell himself. Indeed, Bonestell was much happier with the tag ‘illustrator’ than that of ‘Fine Artist’,⁶⁵ perhaps as a sardonic reflection of his noted disdain for the more conceptual and impressionistic art that was increasingly fashionable in post-war America. In fact, the contrast Bonestell’s astronomical art made to this other kind of art produced at this time was striking. Not least because conceptual and impressionistic artists, such as Mark Rothko, were working in the 1950s to actively dismantle the notion that art be restricted to enabling definite and singular portraits of a fixed, external reality. In contrast, Bonestell’s oeuvre (and the work of astronomical artists who later followed in his style) implicitly courted such popular decoding: as has been shown, these images can readily, if sometimes unknowingly, be translated through a whole series of emotionally and nationalistically simplified orderings of the world ‘out there’ that had been accumulated through a past generation of landscape art and political rhetoric.

By virtue of its success in this regard, Bonestell’s astronomical art helped provide a catalyst for a public mood shift from cautious skepticism and anxiety towards a more composed optimism based around this distinctively American ‘frontier’ paradigm of space travel. Beneath the serene romanticism felt towards outer space, stoked by such frontier analogies, was a growing expectation that America’s destiny was bound up with this new frontier. On 4 October 1957, these hopes were passionately exposed when the USSR successfully sent a 184 pound satellite into low earth orbit. The satellite called ‘Sputnik’, Russian for ‘travelling companion’ (of the earth), was not surprisingly reported across the American news media to suggest a defeat, comparable to Pearl Harbor, of not just American technological prowess but also political ideology and American society.⁶⁶ Sputnik tapped into the growing, post nuclear-age anxiety that American freedom was under external threat. Moreover, because it emerged as a threat to the ‘Magisterial Gaze’ extended into space by Bonestell and von Braun, the intangible menace of Sputnik’s power was necessarily organised as panoptic

and omniscient. As space writer Paul Dickson describes it: “There it was overhead – visible to the naked eye and audible to anyone with a short-wave receiver. America had fought two world wars protected by the breadth of oceans and the comfort of a strong Navy. A certain sense of invulnerability seemed to be an American birthright.”⁶⁷ Meanwhile some members of the American public were even reported as speaking in hushed tones or blacking out windows to avoid the watchful eyes and ears of Sputnik.⁶⁸

The work of von Braun and Bonestell was highly prescient of the solution to this crisis of American manifest destiny in outer space; that is, sending a man to the moon by the end of the 1960’s. Miller and Durant explain how “there is considerable argument in favor of the idea that we would not have been half so anxious to land on the Moon had we known it looked as boring as it does – that his [Bonestell’s] romanticized landscapes helped encourage the development of a lunar landing program.”⁶⁹ Then, in 1961, Kennedy’s ‘moon speech’ sought to sell Congress the benefits of a manned, lunar landing programme in terms that seemed to be pulled straight off the pages of *Collier’s* ‘Conquest of Space’. According to Kennedy:

Now it is time to take longer strides—time for a great new American enterprise—time for this nation to take a clearly leading role in space achievement which, in many ways, may hold the key to our future on earth.”⁷⁰

Implicit in Kennedy’s speech is the idea that outer space can be staged as the universal destiny of humankind, and that America, to ensure its national destiny of leading humanity, must strive to reach this frontier first. In effect, the claiming of frontier space and frontier time was conflated. Retrospectively, the space race also drained vast amounts of cash from the USSR’s military programmes, which, in hindsight, appears to have indeed served a strategic purpose, while the technology developed by the US did indeed have many military and civilian ‘spin-off’ applications. And yet, as Kennedy’s words imply, this was not the way in which Cold War political campaigns, or indeed the space race, was framed and legitimised. Just as the western frontier in the nineteenth century provided a canvas upon which to articulate discourses of American nationalism through writers such as Frederick Jackson Turner, so, as the Apollo programme developed, NASA could evoke a Bonestellian, romanticised vision of outer space as the ‘new’, American frontier. In other words, popular geopolitical imaginations were feeding into practical geopolitical decision-making processes and technological developments. For example, in 1964 NASA administrator James Webb explained how “the frontier thesis . . . based on the ‘wild and unperturbable’ forces of the frontier . . . have the feedback effect of generating in the pioneer those qualities which have made for the American democratic system, the same kind of analogy may be considered in connection with . . .

efforts such as space.”⁷¹ In the same year President Johnson referred to how Americans were going towards a “future of horizons that are unlimited”; the conquest of space would “determine how we live” and whether Americans can win the fight for liberty over Communist enslavement.⁷²

In the next section I address the enduring geopolitical importance of these Bonestellian aesthetic codes, starting with the memorialisation of the Apollo landings. This discussion then leads on to some concluding comments about how the Bonestellian ‘geopolitical-aesthetic’ code has been imbricated into NASA’s current plans for human space exploration.

POST-APOLLO ASTRONOMICAL ART AND THE LEGACY OF CHESLEY BONESTELL

In 1969, American astronauts Neil Armstrong and Buzz Aldrin were photographed on the lunar landscape next to the American flag. This iconic image re-iterates the centrality of frontier landscapes within claims of American nationalism, futurity and identity. Astronomical art has in time also provided the means for the memorialisation of such claims, as illustrated by Robert McCall’s huge mural *Cosmic View* (1975), on display in the foyer of the world’s most visited museum, the National Air and Space Museum (NASM) on the mall in Washington DC (see Figure 2). McCall’s massive mural (the mural extends from the lobby to the second floor of the building), attempts, as the guide books explains to “evoke the past, present and future of the Universe from its birth, though the Apollo lunar landings, to the solar system and the vast reaches of space yet to be explored.”⁷³ While this synchronic visualisation of the universe eschews an Olympian gaze in favour of a more reverential perspective (the viewer gazes upward towards the astronaut), it still manages to convey nationalistic themes of American manifest destiny. Central to this effect is the way the mural foregrounds the moment in which the Apollo astronauts plant the American flag on the moon as a kind of fulcrum around which to organise the eternal lifespan of the universe. In so doing, McCall’s mural appears to deliberately memorialise the Apollo lunar astronauts, and by extension the American state, as the centre of universal time and space.

In addition to this particularly explicit visual articulation of American manifest destiny in outer space, in the years since the Apollo landings astronomical artists such as Michael Carol, David Hardy, William Hartmann and Ron Miller, have continued to reproduce many more Bonestellian visions of space travellers as pioneers exploring the awe-inspiring vistas of distant worlds. Indeed, in tribute to Bonestell’s influence, both William Hartmann and David Hardy have produced parodies of Bonestell’s work. In *The way it should have been* (Figure 3); Hardy, for example, shows the Apollo astronauts landing on a lunar surface taken straight from one of Bonestell’s lunar paintings in *Collier’s*.



FIGURE 2 *The Space Mural* by Robert McCall.

Source: NASM guidebook.

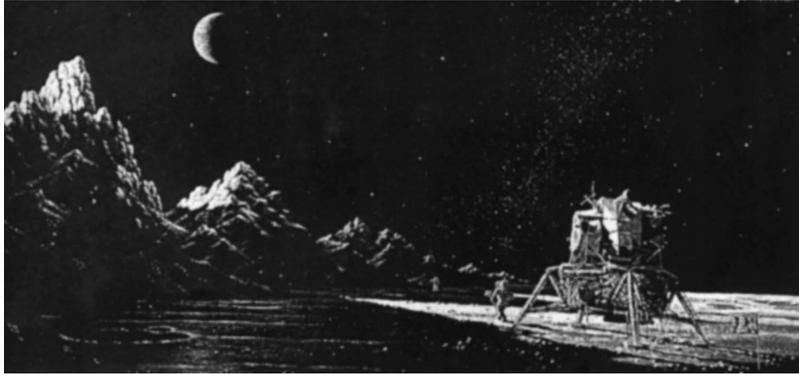


FIGURE 3 *The way it should have been* © David Hardy.⁷⁴

In *Homage to Chesley Bonestell* (Figure 4), William Hartman explains how he “painted the Bonestell rocket as it would have appeared on the real moon, which is more smooth than visualized in 1949.”⁷⁵

The production of American astronomical art, including the two pieces shown above, has been encouraged by two major space art institutions, first, the International Association of Astronomical Artists (IAAA), which was established at the Death Valley gathering of astronomical artists in 1983, and second, the NASA art programme founded in 1962 by NASA Apollo-era administrator James Webb. Both of these institutions have helped to reinforce the Bonestellian ‘geopolitical-aesthetic’ coding of outer space. The IAAA acts as a guild promoting astronomical artists, organising workshops,



FIGURE 4 *Homage to Chesley Bonestell* © William Hartmann.

gatherings and exhibitions that brings together astronomical artists, journalists, publishers and enthusiastic fans from across the world. While representations of planetary landscapes are only one theme for members of the IAAA (for example, members frequently depict space hardware or more abstract astronomical phenomena such as galaxies, nebulae and pulsars), landscape work, in a Bonestellian tradition, is still strongly represented by astronomical artists such as Michael Carroll, William Hartmann, David Hardy, Ron Miller, Kim Poor and Ren Wicks. Members of the IAAA regularly sell their work to the public and organisations, while also disseminating it through space-related books (see Figure 5), popular magazines such as *Reader's Digest*, *National Geographic*, *Newsweek*, and *Discover*, and by producing backgrounds for films such as *Dune* (see Figure 6) and *Contract*.

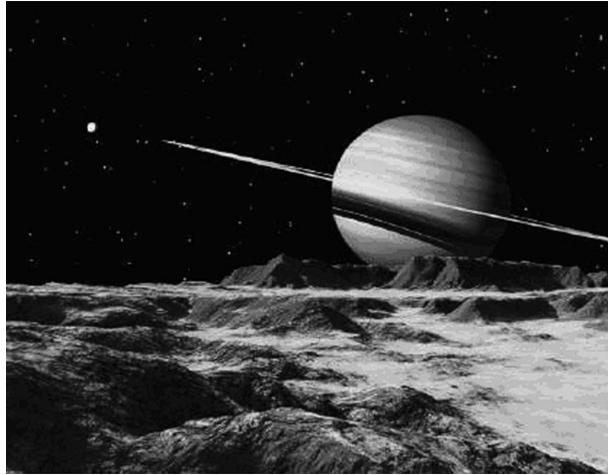


FIGURE 5 *Saturn seen from its satellite Rhea* (2005) © William Hartmann.⁷⁶



FIGURE 6 Production still (1984) © Ron Miller, taken from *Dune*.⁷⁷

Moreover, in acknowledgement of the noted similarities between astronomical art and American Romanticism, the IAAA itself actively promotes comparisons between these images and the landscape art of the 'Rocky Mountain School'. For example, its website describes how in September 2000, eleven members met in Yellowstone to pay

homage to the Old West . . . artists gathered in the high elevations of the Rocky Mountains to experience and paint the formations and features unique to this area. A long standing heritage of explorers and painters have ventured into these picturesque surroundings to record that which exists only here. Thomas Moran . . . to whom we owe much of our allegiance and inspiration, was one of the first to paint here. Moran's works are preserved, both here and in museums, continuing to inspire the artists and explorers of today as much as they did in his time.⁷⁸

The IAAA manifesto also formalises the group's heritage in its opening paragraph:

In the 1800s, artists accompanied explorers into the frontiers of the Americas and sent back colorful images of the new lands. Paintings from Thomas Moran and Albert Bierstadt spurred further exploration of the West, and helped to preserve Yellowstone, Yosemite, and other areas as national parks. . . . But soon, the Earth's frontier-lands disappeared and the link between art and exploration broke down. Today, we receive images from a new frontier that is rapidly expanding, planet to planet, into space. A new link is being forged by a new generation of exploration artists – Astronomical artists. . . . Astronomical art serves the most basic function of fine art, that of inspiration. It directs our focus toward the space frontier, where human destiny inevitably lies.⁷⁹

Similar romantic panoramas have been commissioned as part of NASA's art programme, such as *Mission to Mars* by Ren Wicks (see Figure 7).⁸⁰ However, when looking at the 800 plus works in NASA's art programme, it is evident that planetary representations are less favoured than those of space hardware and celestial phenomena, with the notable exception of the lunar landings. In part this is a reflection of what NASA's art programme was designed to provide for artists, namely a unique opportunity for them to encounter real space hardware, facilities, astronauts and events close-up. Consequently, the permanent exhibitions of NASA's art programme such as those at the NASM and Kennedy Space Center Visitor Complex, are dominated by paintings of shuttle launches, landings and launch facilities, rather than Bonestellian worlds.⁸¹ This is also true of the popular 1999–2000 exhibition of NASA's art programme that toured around America via a



FIGURE 7 *Mission to Mars* by Ren Wicks.

modified train-gallery.⁸² And yet, in many ways the very existence of NASA's art programme is already haunted by Bonestell's vision of space exploration, in that NASA's art programme was born out of an innately Bonestellian popular geopolitics of American manifest destiny in outer space, where national achievement in human space exploration became conflated with the claiming of a universal destiny for humankind. This sentiment became formalised in the founding of NASA's art programme through the belief that distinctly human-centred and celebratory artistic depictions of space exploration are as much an obligatory condition of national aggrandisement as the space missions themselves. For example Dr. Cooke, who was the first curator of NASA's art programme, idealistically remarked on its founding that "perhaps this project will help to prove that the United States produced in the 60s not only the engineers capable of shaping the destiny of our age, but also the artists worthy to keep them company."⁸³ The success of NASA's art programme to act as a cipher for national achievement (through appeals to a popular geopolitics of American manifest destiny) is presumably also not lost on the many major corporations and companies who have frequently sponsored exhibitions.⁸⁴ Given this focus on a unified humanity, perhaps it is also not surprising that few works in NASA's art programme depict scientific probes, military satellites or even planetary landscapes, and of course none entertain an explicitly critical vision of space exploration. That said, an increasing number of NASA sponsored artists have employed more abstract and conceptual approaches that have moved beyond the Bonestellian concern with a heroic and romantic coding of outer space.⁸⁵

While a comprehensive survey of recent astronomical art is beyond the scope of this paper, this brief review of NASA's art programme, along with the IAAA, provides discernible evidence of an enduring Bonestellian popular geopolitics of American manifest destiny inflecting the American astronomic art community. This institutionalised geopolitical narrative is reinforced by the continued pervasiveness of Rocky Mountain School motifs within astronomical art itself. Of particular significance in more recent pieces, such as Ron Miller's *Saturn seen from it's satellite Rhea* (2005) and Ren Wick's *Mission to Mars* (year unknown), is the use of a Bonestellian astronomical perspective – that is an Olympian gaze over a vast plane framed by looming craggy mountains to convey a sense of authority over a vast landscape. Furthermore, frequently pioneers, seemingly American, are depicted exploring these new worlds. Framed by pioneer rhetoric these aesthetic motifs render depictions of places such as Mars particularly amenable to the nationalistic rubric of American manifest destiny, just as Bonestell's images of the moon helped to popularise human space exploration of the moon as the next chapter of American national destiny and the apotheosis of American national identity during the early space age.

CONCLUDING COMMENTS: AMERICAN ASTRONOMICAL ART AND THE FUTURE OF AMERICAN SPACE EXPLORATION

In January 2004, George W. Bush rehabilitated the US space programme, reeling after the loss of Columbia on 1 February 2003, in a speech entitled 'New Vision for Space Exploration'. Once more political rhetoric gestured towards a conflation between frontier exploration and universal destiny, or, as Bush put it, "Mankind is drawn to the heavens for the same reason we were once drawn into unknown lands and across the open sea. We choose to explore space because doing so improves our lives and lifts our national spirit."⁸⁶ Since this speech, US space policy has been re-structured around an ambitious, future programme of human exploration of the Moon and Mars that echoes the forecasts by Bonestell and von Braun in the pages of *Collier's* magazine. While many scientists have expressed concern that this focus on human exploration will endanger NASA's capability to pursue scientific research in outer space, it has enabled NASA to once again re-configure itself as central to popular nation-building narratives of American mission, exceptionalism and futurity. According to the current NASA administrator Michael Griffin, for example: "I believe America should look to its future – and consider what that future will look like if we choose not be a spacefaring nation."⁸⁷ Bush and Griffin's words echo Werner von Braun's bombastic rhetoric in *Collier's* magazine in 1952: "Whoever gains that ultimate position gains control, total control over the earth, for purposes of tyranny or for the service of freedom."⁸⁸ Bush and Griffin's comments re-iterate the image of the American national spirit being lifted to discover a higher place for America from which to survey and command universal space and eternal time; this innately evokes the Olympian gaze and the narrative of American mission and exceptionalism that is implicit in the American landscape sublime. And, perhaps not surprisingly, to envision this sense of destiny, NASA has once again turned to astronomical artists and Bonestellian visions of the Moon and Mars. See, for example, Jack Olson's (year unknown) conception of a future Mars exploration (Figure 8) used on the NASA website to promote NASA's 'New Vision'.⁸⁹

The Bonestellian shape of NASA's 'New Vision', organised around romantic and idealised visions of frontier-spaces to stage a nationalistic sense of American global mission, testifies to the enduring historical interplay between the American landscape sublime and American geopolitics. Perhaps the most important question that remains to be asked is: in a world where Americans find themselves increasingly subjected by the media to the immanent anxiety of an increasingly unpredictable future – from scripts of the Middle East as a geopolitical quagmire, to threats to economic sovereignty from Europe and China, and the uncertainty of climate change – how is it that these mythical, heroic, visions endure as a crucial touchstone in the legitimisation of the US state's territorial aggrandisement and destiny?



FIGURE 8 Artist John J. Olson's conception for the future of space exploration: A base on Mars.

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NOTES

1. The artist Ron Miller distinguishes between astronomical and hardware space art: "The former is an extension of landscape painting. . . . Hardware art concerns itself with the means by which space will be explored, and its practitioners are more interested in *how* we are going to get somewhere than in what we are going to find when we get there", p. 17 in Ron Miller, 'State of Art', *Spaceworld* (Aug. 1988). As this paper demonstrates, this distinction is often blurred in practice, as space artists frequently depict both hardware and extra-terrestrial scenes. Hence, the division is perhaps best considered more a decision over the emphasis given to a particular subject (hardware or astronomical subjects).

2. Andrew Chaikin, 'Death Valley Meeting of Space Artists', *Spaceflight* (June 1984).

3. *Ibid.*, p. 16.

4. Ron Miller, 'Space Art', *Spaceflight* 30 (Aug. 1988) p. 319.
5. For more detail on the sublime see Peter Shaw, *The Sublime* (London: Routledge 2006) and on the American sublime see Tony Barringer and Andrew Wilton, *American Sublime: Landscape Painting in the United States, 1820–1880* (London: Tate 2002); also Joni Kinsey, *Thomas Moran: and the Surveying of the American West* (Washington, DC: Smithsonian Press 1992) and Albert Boime, *The Magisterial Gaze: Manifest Destiny and American Landscape Painting c. 1830–1865* (Washington, DC: Smithsonian Press 1991).
6. Gearoid O Tuathail, *Critical Geopolitics* (Minneapolis, MN: UMP 1996) p. 17.
7. O Tuathail (note 6); Gearoid O Tuathail and Simon Dalby, *Rethinking Geopolitics* (London: Routledge 1998).
8. Fraser Macdonald, 'Geopolitics and the Vision Thing: Regarding Britain and America's First Nuclear Missile', *Transactions of the Institute of British Geographers* 31 (2006) pp. 53–71; Jo Sharp, *Condensing the Cold War: The Reader's Digest and American Identity, 1922–1994* (Minneapolis, MN: UMP 2000); Gazhi-Walid Falah, Colin Flint, and Virginie Mamadouh, 'Just War and Extraterritoriality: The Popular Geopolitics of the United States' War on Iraq as Reflected in Newspapers of the Arab World', *Annals of the Association of American Geographers* 96/1 (2006) pp. 142–64. Sean Carter and Derek McCormack, 'Film, Geopolitics and the Affective Logics of Intervention', *Political Geography* 25 (2006) pp. 228–245.
9. Sharp (note 8).
10. See for example: Sharp (note 8); Falah et al. (note 8); Gearoid O Tuathail, 'The Frustrations of Geopolitics and the Pleasures of War: *Behind Enemy Lines* and American Geopolitical Culture', *Geopolitics* 10 (2005) pp. 356–77; David Campbell, 'Cultural Governance and Pictorial Resistance: Reflections on the Imaging of War', *Review of International Studies* 29 (supplement S1) (2003) pp. 57–73.
11. Carter and McCormack (note 8); Macdonald (note 8); Falah et al. (note 8); Gearoid O Tuathail, 'Just Out Looking for a Fight': American Affect and the Invasion of Iraq' *Antipode* 35 (2003) pp. 857–70.
12. Miller (note 1).
13. On the American sublime tradition see T. J. Barringer and A. Wilton (note 5), and also A. Boime (note 5) as well as Kinsey (note 5).
14. Kinsey (note 5).
15. *Ibid.*, p. 13.
16. *Ibid.*, p. 13.
17. *Ibid.*, p. 15.
18. Boime (note 5) p. 35.
19. Edward Casey, *Representing Place: Landscape Painting and Maps* (Minneapolis, MN: UMP 2002) pp. 68–72.
20. Barbara Novak, *Nature and Culture: American Landscape Painting 1825–1875* (Oxford: OUP 1995) pp. 41–42.
21. *Ibid.*, p. 154.
22. *Ibid.*, p. 7.
23. Kinsey (note 5) p. 153.
24. Quoted in Kinsey (note 5) p. 149.
25. Boime (note 5).
26. *Ibid.*, pp. 1–2.
27. *Ibid.*, pp. 23, 26
28. Dennis Cosgrove, *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination* (Baltimore: JHUP 2001) p. 2.
29. O Tuathail, *Critical Geopolitics* (note 6) p. 43.
30. Anders Stephenson, *Manifest Destiny: American Exceptionalism and the Empire of Right* (New York: Hill and Wang 1995).
31. Kinsey (note 5) pp. 176, 142.
32. Boime (note 5); Kinsey (note 5) pp. 58–67.
33. Kinsey (note 5) p. 62.
34. O Tuathail, *Critical Geopolitics* (note 6) p. 176.
35. Howard McCurdy, *Space and the American Imagination* (Washington, DC: Smithsonian Press 1997) pp. 40–47.
36. Ron Miller and Frederick Durant III, *The Art of Chesley Bonestell* (London: Paper Tiger 2001) p. 73.
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38. William Burrows, *This New Ocean: The Story of the First Space Age* (New York: Random House 1998).
39. McCurdy (note 35) p. 45.

40. Thomas Hine, 'A Time Machine through Space', *The Philadelphia Inquirer* (20 Jan. 1992) pp. 22–23; David Hardy, 'Faces of the Moon', *Spaceflight* 45 (March 2002) pp. 103–105; Mike McIntyre, 'Celestial Visions', *Air & Space* (Aug./Sept. 1986) pp. 86–92.
41. McCurdy (note 35) p. 44; Miller and Durant (note 36) p. 25.
42. Miller and Durant (note 36) p. 35.
43. *Ibid.*, pp. 57–93.
44. McCurdy (note 35) p. 37.
45. Miller and Durant (note 36) p. 77.
46. McCurdy (note 35) p. 40.
47. Miller and Durant (note 36) pp. 77–90.
48. McCurdy (note 35) pp. 41–43.
49. Miller and Durant (note 36) p. 9.
50. M. K. Booker, *Monsters, Mushroom Clouds and the Cold War* (Westport, CT: Greenwood Press 2001) and Cindy Hendershot, *Paranoia, The Bomb, and 1950s Science Fiction Films* (Bowling Green, OH: Bowling Green State University Press 1999).
51. *Ibid.*
52. Miller and Durant (note 36) p. 57.
53. McCurdy (note 35) p. 45.
54. Andrew Chaikin, *A Man on the Moon* (London: Penguin 1998).
55. Miller and Durant (note 36) pp. 109–10.
56. Cosgrove (note 28).
57. Boime (note 5).
58. Miller and Durant (note 36) p. 28.
59. *Ibid.*, p. 93.
60. Birgitta Hjalmarson, *Artful Players: Artistic Life in Early San Francisco* (Glendale, CA: Balcony Press 1999).
61. McCurdy (note 35) p. 40.
62. Miller and Durant (note 36) p. 77.
63. Jonathan Smith, 'American Geographical Ironies: A Conclusion', Chapter 11 in John Agnew and Jonathan Smith (eds.), *American Space / American Place: Geographies of the Contemporary United States* (Edinburgh: EUP 2002).
64. Jo Sharp, 'Refiguring Geopolitics: The Reader's Digest and Popular Geopolitics of Danger at the End of the Cold War', in K. Dodds and D. Atkinson (eds.), *Geopolitical Traditions: A Century of Geopolitical Thought* (London: Routledge 2000) p. 335.
65. Miller and Durant (note 36).
66. Burrows (note 38) p. 192; McCurdy (note 35).
67. Peter Dickson, *Sputnik: The Shock of the Century* (New York: Berkeley Books 2001) p. 128.
68. McCurdy (note 35).
69. Miller and Durant (note 36) p. 93.
70. John F. Kennedy, quoted in Burrows (note 38) p. 330.
71. Walter McDougall, *The Heavens and the Earth: A Political History of the Space Age* (Baltimore: John Hopkins UP, 1985) pp. 387–88.
72. *Ibid.*, pp. 401–02.
73. David Romanowki, *Official Guide to the Smithsonian National Air and Space Museum* (Washington, DC: Smithsonian Institution Press 2002) p. 66.
74. Hardy (note 40) p. 105.
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