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Contested Global Visions: *One-World, Whole-Earth*, and the Apollo Space Photographs

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At 05:33 Eastern Standard Time on December 7, 1972, one of the three United States astronauts aboard the spaceship Apollo 17 on its coast towards the Moon shot a sequence of eleven color photographs of Earth with a handheld Hasselblad camera. Twelve hours after the spacecraft's splashdown on Christmas Eve, the film sequence was developed at the Manned Space Center in Houston. Doug Ward, National Aeronautics and Space Administration's (NASA) Director of Public Affairs, examined the printed sequence with a view to issuing part of the mission's three- to four-thousand frame photographic record for the waiting press. One of the images—number AS17-148-22727 taken at some 21,750 nautical miles from the Earth (Figure 1)—caught his photojournalist's eye.¹ It captured, center-frame and with perfect resolution, the full terracqueous disk without a solar shadow or "terminator." The whole Earth, geography's principal object of study, had been photographed by a human eyewitness.

My intention here is to examine that photographic image, 22727, together with an earlier and equally familiar Apollo photograph of Earth rising over a lunar landscape, *Earthrise* (Figure 2), with the intention of placing them in the cultural and historical context of Western global images and imaginings. I shall argue that representations of the globe and the whole Earth in the twentieth century have drawn upon and reconstituted a repertoire of sacred and secular, colonial and imperial meanings, and that these representations have played an especially significant role in the self-representation of the post-war United States and its geo-cultural mission. While the Apollo lunar project signified the achievement of the tech-

nocratic goals and universalist rhetoric of Modernism, the project's most enduring legacy is a collection of *images* whose meanings are contested in post-colonial and postmodernist discourses. In order to analyze and contextualize these Apollo images, I bring to bear the intertextual approach developed in contemporary cultural analysis, here applied to the primary object of geographical representation: the surface of the Earth. The photographs are interpreted by reference to various texts, some



Figure 1. *The Whole Earth* (NASA AS17-148-22727). Apollo 17 photograph of Earth from space, December 1972.

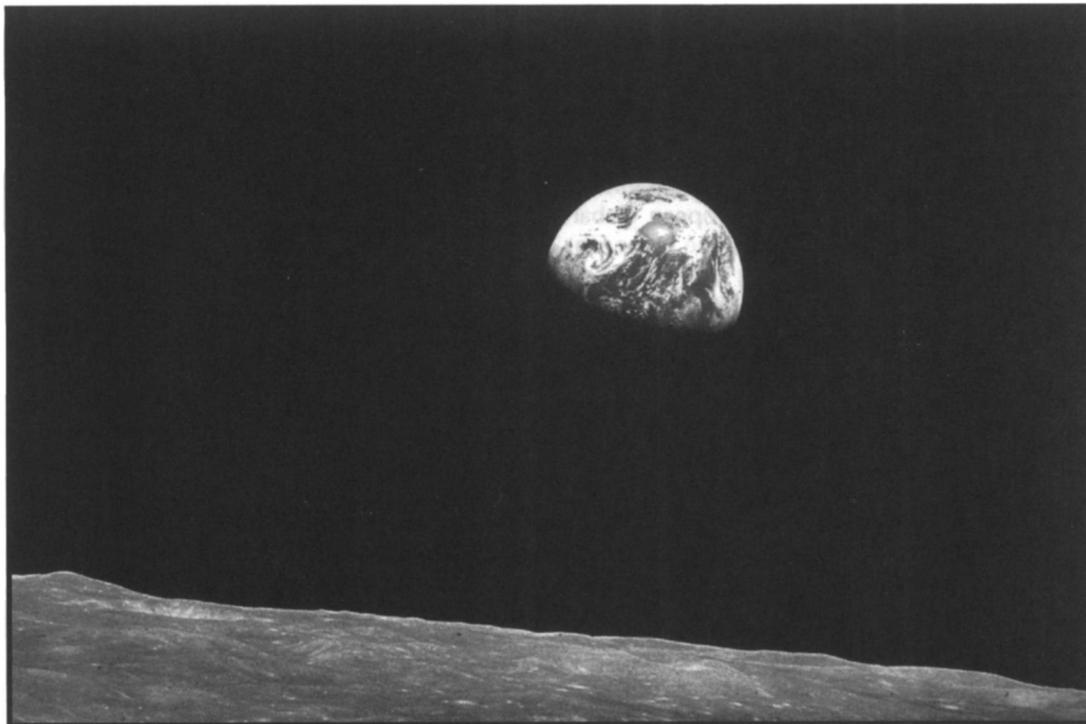


Figure 2. *Earthrise* (NASA AS8-14-2383). Apollo 8 photograph of Earth taken from lunar orbit, December 1968.

written about them, others referring less directly to imagined and actual views and representations of the globe but providing context for Apollo readings.

The Apollo Earth photographs, though receiving very limited formal attention within geography, have been widely used as cover illustrations for texts and journals (for example, in *Geography*, the journal of the Geographical Association in Britain). They have been enormously significant however in altering the shape of the contemporary *geographical imagination*. This essay thus contributes to the growing interest in the histories of geographical knowledge, in which geography as a formal academic discipline is merely one element (Driver 1992; Livingstone 1992). And by examining terms that are so closely associated with the Apollo images (*One-world* and *Whole-earth*), we provide perspective also on geography's engagement in contemporary cultural debate.

Seeing the Globe

Seeing the Earth whole is critical to the imaginative reception of the space images and to the totalizing socio-environmental discourses of *One-world* and *Whole-earth* to which they have become so closely attached. To be sure, images of the globe from a distance sufficient for viewers to grasp its totality long predate the Apollo photographs of the 1960s. Indeed, an Apollonian perspective is implicit in Ptolemaic cartography's positioning of the observer at sufficient distance to see the spherical Earth. The fifteenth-century rediscovery of this mode of terrestrial mapping marks the beginnings of European Modernity.² An epigram celebrating Abraham Ortelius' *Teatrum Orbis Terrarum* (1570) portrays the editor of the first systematic world atlas as Apollo owing to his ability imaginatively to circle so high above the world that the entire stage of human life was opened to his, and the reader's, eye. Since the time of

Ortelius and Mercator, atlases have conventionally opened with a world map, in Renaissance terms a *speculum* or mirror for the European eye. And by linking the cartographic representation of the Earth to its history as recounted in the Judeo-Christian tradition (Rabasa 1985), the first modern cartographers joined graphical syntheses of European global knowledge in the first century of the European *imperium* with a universalizing Christian cosmology and planetary geo-strategic discourses—all of which prefigures the production and early reception of the Apollo space images (Jacob 1992).

Of course, the use of the sphere as an imperial emblem predates the Renaissance. From the period of Constantine (A.D. 324–337), the sphere is interwoven into the discourses of Christendom and Empire. A favored medieval representation depicts Christ holding or standing on the tripartite *terrarum orbis*. The geometrical perfection of the sphere renders it a suitable symbol of divinity, and Christian neoplatonists often exploited the microcosm-macrocosm implications of the congruent shapes of the human eye and the terrestrial globe, especially as represented by Ptolemy (Cosgrove 1993). It is a short step thence to *seeing* as the foundation of knowledge and power, and to the gaze—distanced, objective, and penetrating—as symbolically mastering, masculine, and modern.³ The habits of simultaneously gazing upon the world and mastering it are increasingly synonymous in the lavishly decorated globes, atlases and world maps that were designed to satisfy the visual lusts of Baroque princes. A case in point is Vincenzo Coronelli's design of celestial and terrestrial globes for Louis XIV at Marly. In addition to being the largest ever produced, his globes are inscribed with the pattern of the heavens at the moment of the Sun King's nativity and with decorative legends on the terrestrial sphere that narrate the radiant spread of his faith and power across the globe. By the eighteenth century, the intellectual mastery of globes, their celestial pattern, and their evermore detailed terrestrial outline of continents and seas was an accomplishment expected of the educated European bourgeoisie, male and female alike (Figure 3).

Imaginative writers were equally fascinated by the view of the whole Earth from space. Two examples suffice to illustrate this link be-



Figure 3. Pietro Longhi's *The Geography Lesson*. Fondazione Querini Stampalia, Venice.

tween imaginings and Modernity. In 1665 members of the newly-founded Royal Society in London heard a paper entitled "Monsieur Auzout's Speculations of the Changes, Likely to be Discovered in the Earth and the Moon, by Their Respective Inhabitants," that drew on the findings of the new physics to describe how our planet might look to an extraterrestrial (*Philosophical Transactions* 1665). Two centuries later, at the moment of Europe's final drive for terrestrial hegemony, Philip Gilbert Hamilton imagined the Archangel Raphael's perspective of Earth as he flew towards the terrestrial paradise bearing God's message to Adam. Hamilton's description prefigures photograph 22727 with uncanny accuracy:

It would first become visible as a mere point of light, then as a remote planet appears to us; after that it would shine and dazzle us; then we should begin to see its geography as we do that of the moon; at last when we came within three terrestrial diameters, or about twenty thousand miles [almost exactly the distance of 22727], we should distinguish white icy poles, the vast blue oceans, the continents as large islands glistening like gold

in the sunshine, and the bright silver wandering fields of clouds. (quoted in Newhall 1969:12)

In Hamilton's time, photography as a new mode of representation was being pressed into the service of cartography. Aerial photographs taken from balloons and kites offered a new mode of representation by the early twentieth century. In the same years, polar expeditions were completing the European project of global exploration and mapping begun a half-millennium earlier (Fogg 1990; Katz and Kirby 1991). Accurate cartographic representation of the vast polar regions was not to be achieved, however, by Earth-bound observers. It was powered flight and airplane cameras during the inter-war years that first provided cartographers with accurate data on Antarctica. Although reiterating the power of seeing, aerial photographs did not offer a global view; rather they reinforced the particularizing qualities of the conventional topographic map. Only the highest flying balloons in the 1930s achieved sufficient altitude to convey even an impression of the Earth's curvature. The photographic image of the whole Earth thus awaited space rocketry in the period following World War II. From the earliest American experiments with captured German V2 rockets, cameras attached to these new sources of power offered an ever-wider perspective on the Earth's surface. The cultural relations between photography, cartography, and air power in the twentieth century are central therefore to an understanding of the Apollo images and the interpretative ambiguities that have attended them. I shall return to these issues following a resumé of the production and content of the Apollo space images.

The Apollo Program and Earth Photography

The Apollo space program was aptly named. Greek Apollo combined the strength and beauty of male youth with the severe purity of reason. As a sun god he circled the Earth, his dispassionate vision encompassing the pathetic doings of mortals (Figure 4). On the shoulders of similarly youthful male heroes, NASA's Saturn rockets carried the imaginative vision of a modern superpower beyond the confines of Earth. The program's appeal, while spectacular,

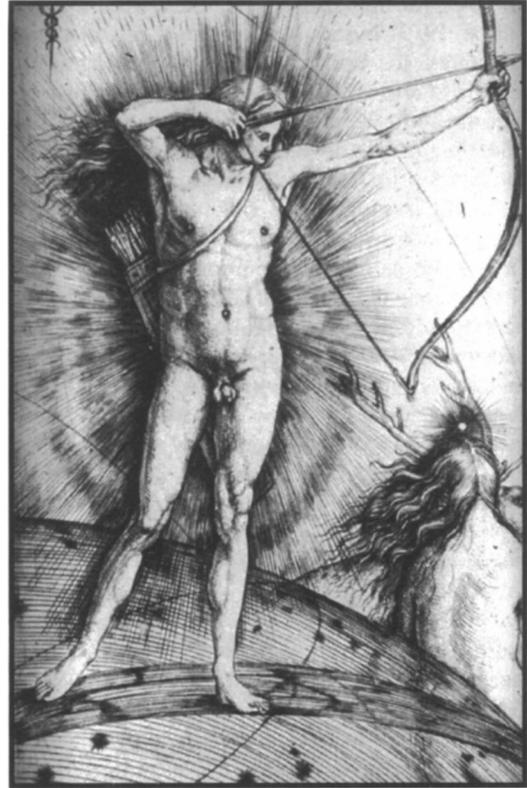


Figure 4. Jacopo de'Barbari's *Apollo and Diana*. Venetian early sixteenth-century engraving showing the Greek God Apollo standing above the terrestrial globe which turns along the zodiacal band below his feet. Courtesy of The British Library.

was short-lived. Apollo 17 was the last in a series of American-manned flights to the Moon. Indeed the two expeditions planned to follow it had already been cancelled before its launch. The entire period of the Apollo space program thus spanned little more than a decade from its inception in 1961. Apollo 8, the first to escape Earth orbit and encircle the Moon, returned during Christmas 1968 with *Earthrise*. With it came the earliest eyewitness pictures taken from sufficient distance to capture the whole terraqueous globe, albeit as a partial and shadowed disk suspended over the lunar landscape (Figure 2). *Earthrise* was the subject of immediate commentary and speculation about a reformed view of the world. But soon after the objective of a lunar landing was achieved in 1969, public interest and official

support for the Apollo program waned rapidly. Since 1972, NASA has confined astronomical activities to Earth orbit. Two photographs, *Earthrise* and 22727, define therefore a historical moment in which the curtain opened on the theater of the world and the human eye pretended to Apollo's heritage.

Oddly enough, the only major American newspaper to carry 22727 was *The Chicago Tribune* in its edition of Sunday, December 24, 1972, while the *National Geographic* magazine failed to reproduce the image in its lavishly illustrated 1973 summary of "mankind's greatest adventure" (Grosvenor 1973). Under the headline "One Last View of Earth", the *Tribune* noted presciently that not only was this "the first time the full Earth has been photographed," but that it might also be the last. What neither journalists nor other commentators anticipated, however, was the enormous popularity of this image. As an icon of the Earth, 22727 would largely replace the cartographer's globe with its delineation of lands and seas on a graticule of latitude and longitude. The fact that both *Earthrise* and 22727 are in the public domain⁴ accounts, in part, for their ubiquitous reproduction as advertising and publicity copy. But that does not tell us why these images have become such powerful and ambiguous icons, their meaning apparently malleable enough for deployment in behalf of diverse and often opposing ideological positions. More than any other images, *Earthrise* and Photo 22727 now serve as visual signifiers for the terms *Whole-earth* and *One-world*, especially in American culture.⁵ Yet when we reflect on the status that these two photographs have achieved over the past twenty years, the lack of critical attention accorded to them is remarkable.⁶ Writings about them have paid little attention to their pictorial form and content; they have assumed instead that the pictures are so familiar that they do not require reproduction. Nor have critics reflected on the historical and geographical contexts in which these images were initially produced, later reproduced, and eventually textualized.

The justifications for the Apollo program were primarily scientific and technical. The program was seen as offering opportunities for scientific and engineering studies of spacecraft performance, human responses, astronomical phenomena and, above all, the lunar surface itself (Roland 1985; Rudney 1970). Although

NASA officials debated the use of satellites in photographing Earth resources (Compton 1989; Mack 1990; Wilhelms 1993), Earth observation was of relatively minor significance throughout. During preparations for the Apollo 8 launch, however, NASA focused considerable attention on photographic plans. These plans competed for the astronauts' time and attention with a wide range of other demands. The mission's aim—to establish possible lunar landing sites—required high-resolution photography and, because selection depended in part on the astronauts' judgments of site quality, usage of a handheld camera in addition to automatic work (NASA 077-66 1968).

Apollo 8 carried two 70mm and nine 16mm magazines for Hasselblad handheld cameras to be used for lunar, Saturn IVB rocket, and Earth photography (NASA 070-36 1968; also NASA MSC-NA-69 1969:13-1,4). Calculations of shutter speed (1/250 seconds), exposure, scene geometry and albedo effects, and film sensitivity were determined by the exigencies of the lunar surface rather than Earth photography (NASA MSC-PA-R-69-1 1969:4-3). The *Final Photographic and TV Operations Plan* for Apollo 8 ranked photographic objectives under two categories: Category A listed "Operation Objectives" that were largely concerned with the lunar surface and the performance of the Saturn rocket. The thirteen Category B objectives were headed by "long distance Earth still photography," including weather and terrain analysis with global coverage, horizon and high atmosphere studies, and "Earth terminator studies." Near the bottom of the list, item B12 allocated just 60 of the 335 available frames to "Crew observations," that is, still-camera photography in order "to provide documentary evidence of visually observed phenomena, features to be selected by the crew" (NASA 077-66 1968). In later missions, these photographs would be referred to as "targets of opportunity." Ironically, if Earth photography was almost an afterthought in mission planning, it was these low-priority targets of opportunity that would yield some of the most enduring images of the entire Apollo program.

Earthrise

Apollo 8 produced the photograph of a partially shadowed Earth rising over the lunar sur-

face (Figure 2). The shot was a sensation, despite the fact that full-Earth images from mechanical cameras predated the Apollo 8 mission by two years. In 1966 Lunar Orbiter I, an unmanned lunar vehicle, sent back a full-Earth photograph that had been processed in space and electronically recomposed back on the ground; and in July 1967 a color photograph of the full earthly disk was received from a United States Navy Dodge satellite. These images were not widely publicized, however, because their quality was poor. *Earthrise* was, by contrast, witnessed by a mass television audience prior to the publication of this stunning still-color photograph. Given the appeal of *Earthrise*, the formal aspects of its composition are worthy of more detailed examination.

The still photograph (AS8-14-2383) is tripartite in composition. A section of the lunar surface "grounds" the image; it is light grey in color, dusty in texture, and the outlines of craters are visible from color contrast. This portion of the photograph occupies some 25 percent of the frame and contains an uninterrupted horizon line sloping gently from left to right. The rest of the image consists of the deep black of unexposed film enshrouding the semicircle of Earth slightly right of center. The Earth is composed of swirls of white against a blue background in the color print or black in the monochrome. Patches of brown at the lower edge, where the clear definition of the upper arc gives way to the haze of the terminator line, are scarcely traceable on the monochrome. They can, with close attention, be recognized on the color print as the western edge of the African continent. The sloping horizon and position of the Earth give the picture a directional sense, while the orientation of the planet on an east-west axis, the swirling pattern of cloud, and the shading of the land mass into darkness all suggest its revolution.

The most striking aspect of the photograph is its inversion of an intensely familiar representational theme: a nocturnal landscape illuminated by a half-moon. But here the "landscape" element is the inorganic moon while color is reserved to the cool oceanic and atmospheric earth. A secondary challenge to familiar assumptions is the lack of any other illumination—the night sky is bereft of stars. Combined with the deathly lunar surface the photograph suggests the complete isolation of terrestrial life in a black, sepulchral universe. In

the words of Buckminster Fuller, the Earth appears to float in "x-trillions of time years of nothingness (whose incredible depths appear to us as pure no-light, a quality of blackness never before experienced)" (Fuller 1969:37). By no stretch of the imagination could we call *Earthrise* a cartographic image; it is however intensely *geographical*, drawing on powerful conventions of cosmographic and chorographic representation in the Western geographical imagination (Cosgrove 1984) and opening it to the range of interpretations discussed below.

22727

Despite the sensation which attended publication of *Earthrise*, NASA's photographic plans for Apollo 17 assigned no greater priority to Earth photography than for Apollo 8 or any of the intervening manned space shots. In September 1972, three months before the launch of Apollo 17, NASA received a review of crew-operated photography during the Apollo program (NASA TN D-6972 1972). The extremely detailed plans for photographic procedures left little room for initiative on the part of the astronauts. Among the major constraints were: exposure times in the absence of light-diffusing atmosphere; insufficient time to determine optimal settings and vantage points; and weight limits on the number and variety of lenses and film. While other constraints such as spacecraft roll, sight-lines, angles and elevation of targets, and planetary and terminator rise and set times could be met by pre-computing and pre-flight simulation, photography's relatively low priority generally meant that the opportunities for a comprehensive and high-quality photographic record were consistently sub-optimal throughout the program.

Given these constraints and the loss of a number of frames on the Apollo 17 mission owing to the failure of the film-forwarding motor on the Hasselblad, it is remarkable that 22727 is as fine an image as it is unique. The mission's plan called for photographic sequences of lunar earthshine photographs to be taken during the trans-lunar coast (TLC), but other shots were "targets of opportunity." The sequence of eleven Earth photographs (22725–22735), taken after a shot of the falling away of the final stage of the Saturn V rocket,

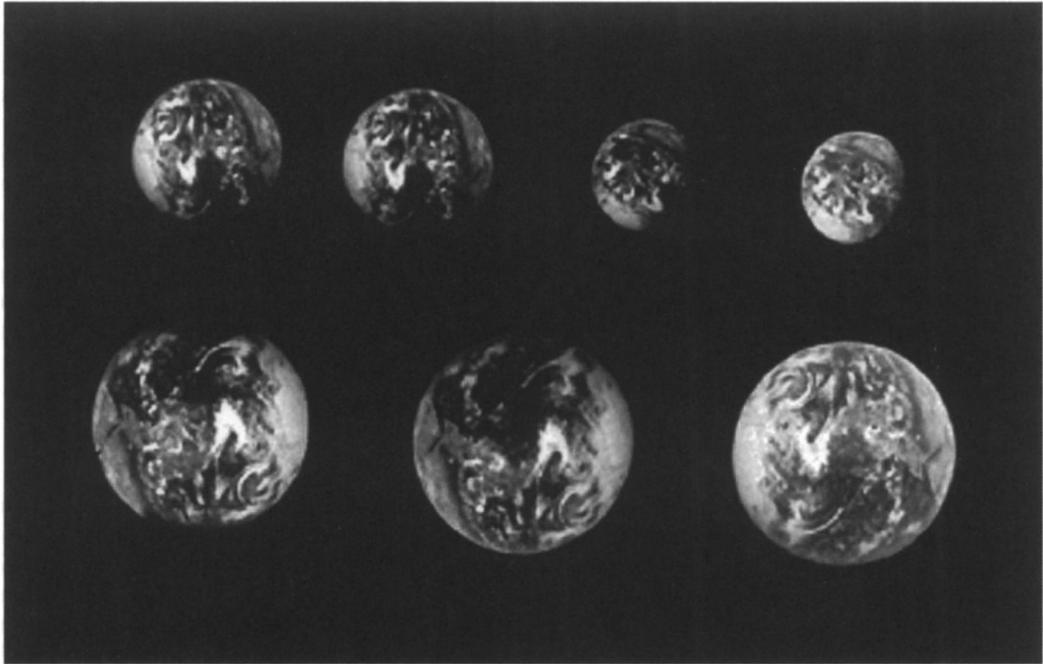


Figure 5. Contact print of Apollo 17 photographic sequence showing 22727. Source: NASA, JSC.

varied in quality because of problems of exposure and framing (Figure 5). The *Preliminary Science Report* following the mission paid little attention to these Earth photographs. It reproduced Photo 22727 accompanied by a bland caption: "For the first time on an Apollo mission, the Antarctic icecap was visible during the Apollo 17 TLC. This full disk view encompasses much of the South Atlantic Ocean, virtually all the Indian Ocean, Antarctica, Africa, a part of Asia, and, on the horizon, Indonesia and the western edge of Australia" (NASA SP-330 1973:4–9).

The popular response was, by contrast, rather more enthusiastic. Indeed the very ubiquity of 22727, endlessly reproduced on post-cards, lapel buttons, flags, calendars, political manifestos, commercial advertisements, and tee-shirts (Gaarb 1985), serves to deflect close scrutiny of the image's content. In some cases its reproducers have unconsciously and unobservedly reversed the image as, for example, when BBC TV News used 22727 as the logo for their week-long coverage of the Rio Earth

Summit in 1992 (Figure 6). All of this suggests that the formal qualities of the image outweighed its cartographic content. To be sure, examination of the image's composition and content suggests a density and an aesthetic harmony that are remarkable in a photograph taken almost at whim. Undoubtedly these artistic qualities have played a significant, if little noted, role in the photograph's dissemination and reception.

22727 locates a perfectly circular Earth image within a square frame. When the terrestrial disk is centered by minor cropping of the original shot, the image attains the mandala form of circle and square whose completeness and geometrical unity are familiar from the cross-cultural history of cosmic images and which Carl Jung (1959) regarded as a key archetype. This may account, in part, for the quasi-mantric status of the image among *Whole-earth* enthusiasts. As in *Earthrise*, the surrounding space is a deep black void. The floating Earth seems to merge into nothingness, an impression that is conveyed by the faint edging haziness of its



Figure 6. *Attractive Detached Residence.* Poster published by Friends of the Earth, London. Courtesy of Friends of the Earth.

outline, that is produced by the globe's encircling belt of atmosphere, and that is delineated most clearly against the land mass at the top left. Within the circular frame are secondary and more complex geometrical shapes: a major triangle of land, a series of arcs dividing the disk into bands, and a number of minor circles giving weight to the lower part (Figure 7). These downward curving arcs together with the atmospheric haze, the cloud forms, and the colors produce a watery image of almost tearful intensity.

The dominant colors are blue, white, and brown. The brown and blue are easily recognizable to anyone familiar with the conventional world map as the land masses of Africa and the Arabian Peninsula and the South Atlantic and Indian Oceans, respectively. The desert and savannah regions of Africa and Arabia, Earth's largest cloud-free region, occupy the frame. The Gulf of Aden and the Red Sea cut a deep gash into the patch of ocher so that the

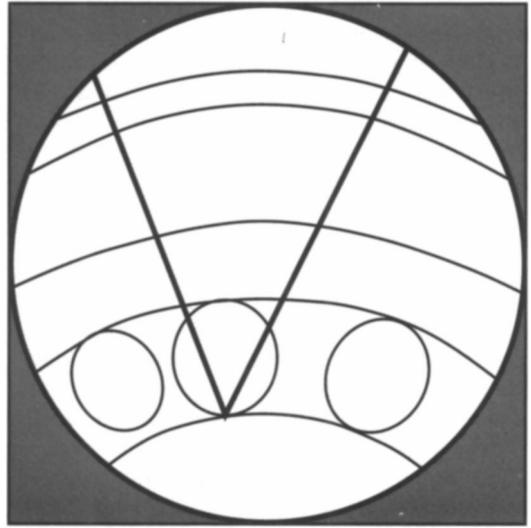


Figure 7. Analysis of geometry of 22727 showing the pattern of square, circles, arcs and triangle.

Horn of Africa and Arabian desert peninsula are clearly etched. Patches of white clouds wreathe the rest of the Earth, save for the dense mass of the Antarctic continent whose outline is readily apparent.

Since the photograph orients the globe according to the cardinal points, the warm browns of the cloud-free Sahara at the top (north) are perfectly balanced by the cold white of the icy Antarctic mass on the lower (southern) edge. A broadly circular area of ocean defined by the coast of Mozambique, the island of Madagascar and the northern edge of the densest cloud mass, provides a central focus to the design. Given the time of year, close to the winter solstice, and the trajectory of the spaceship, the east-west diameter of the global disk lies almost exactly along the Tropic of Capricorn, while the equatorial line is identifiable by the broken cloud cover of the Intertropical Convergence Zone. The largest visible oceanic area lies east of Africa in the western part of the Indian Ocean whose high productivity renders it intensely blue on a photographic plate. Any monotony of marine tones is relieved, however, by the pattern of clouds in the southern oceans: a series of swirling sickle shapes formed by depressions pass-

ing from west to east and giving the impression of rotational dynamism. This impression is further emphasized—and the picture rendered three-dimensional—by the equatorial arc of broken clouds. Thus, when these compositional elements are taken as a whole, photograph 22727 is readily correlated with modern cartographic representations of the world.

At the upper edge of the photograph, the eastern part of the Mediterranean Sea is just discernible. To Western eyes this is the “oldest” part of the world, cartographic center of Ptolemy’s ecumene. Or, as an American commentator speaking about an earlier space photograph put it, “much of our commonly taught history centers around that little sea, a mere patch in the hemisphere, which once seemed to its inhabitants the whole world” (quoted in Nicks 1970:3). At the base of 22727, meanwhile, is Antarctica, the “youngest” part of the known world, “globalised” under the Treaty of 1959. Between lies Africa. Although now widely regarded as the birthplace of mankind, Africa has been seen as the “dark” continent in conventional Western imagination and it has been consistently diminished in Eurocentric cartographic practice (Rabasa 1985:14, footnote 6; Driver 1992). 22727, by contrast, gives Africa an unaccustomed centrality in the representation of the world. Indeed the *South* dominates the image to the exclusion of Europe, the Americas, and Australasia.

For Western observers, the image 22727 challenges received notions of continental scale by exaggerating precisely those regions—Africa, the southern oceans, Antarctica—that, through the cartographer’s choice of map projections, normally appear so small on world maps, and so correspondingly insignificant in Western geographical consciousness. Above all, the picture lacks both the coordinating system of the graticule and text. In the first instance, the graticule has been so taken for granted in cartographic representation since the Renaissance that we register only subliminally its organizing lattice. In the second, placing names on the world map has been such an important cartographic expression of European knowledge-power that their absence from 22727 constitutes a radical challenge to the Modern geographical imagination. Freed of graticule, names, and human boundaries, 22727 represents an earth liberated from cultural constrictions and apparently at liberty to

clothe itself anew in the natural hues of water, earth, and the softest veils of atmosphere.

Modernist Global Images and Visions

While the formal qualities of *Earthrise* and 22727 and the narrow context of their origin in the Apollo space program served to increase the cultural significance of the photographic images, these factors fall short of a full account. Critical interpretation requires us to delve further by examining the broader aspects of Modern culture in which the images were addressed. In this section, I return to twentieth-century interrelations between photography, the aerial vision, global representations, and geopolitics as they played themselves out within Modernist discourse, especially in the United States. This approach more directly addresses the cultural assumptions that engaged interpretations of the Apollo Earth images, both initially and in the ensuing quarter century.

I have already noted photography’s role in completing the planetary cartographic project entrained during the European Renaissance. The influence of photography in structuring the Western geographical imagination is only now beginning to receive the critical attention it deserves. Photography’s close relations with landscape painting in the era of the diorama and the American conquest of the West have been noted often enough (Galassi 1981; Daniels 1993), but photography played an equally significant role in imperialist representations of the cultural *Other* within the late nineteenth-century discourses of European sciences such as anthropology and geography (Harraway 1991; Ryan 1994). That same period also marks the origin of photography’s powerful claim to mimetic truth, a claim only successfully challenged during the past two decades (Bolton 1989; Shapiro 1988). Bureaucratic and judicial acceptance of photography as documentary and legal evidence in the 1890s fostered the assumption that the camera cannot lie (Tagg 1988). The photograph implied a human eye behind the camera and thus a “witness” whose image testified to the veracity of the recorded event. The significance of the eyewitness in establishing the truth of images resurfaced in the history of space photography

as well: John Glenn's 1962 pictures of Earth, shot with a 35mm camera, had much greater public impact than the hundreds of terrestrial images taken by automatic cameras and sensors—and the same applies to the *Whole-earth* images discussed here, also predated by automatically generated photographs.⁷ The claim that *Earthrise* and 22727 offered the first pictures of the Earth “as it really is” depended upon this armature of assumptions that deflected the objectivity of the photographic image.

The Airman's Vision

However, the Apollo images emerge from a history that is much more specific than that of photography in general. This history deals with the intimate relations between the camera and aerial flight and with the status attributed to the eyewitness behind the aerial camera, the airman himself, that developed during the course of the twentieth century. The revolutionary perspective afforded by the aerial view of the Earth encouraged balloon photography from the earliest days of the new medium and that view also appealed to the Modernist imagination in the interwar years. This appeal was especially strong in those nations—Italy, Germany, and the United States—that most enthusiastically adopted Modernism's futuristic aesthetic. The Italian Futurist painter Marinetti, for example, proclaimed the aerial view as the artistic perspective of the future; and in 1928, the *National Geographic* published a series of articles on geography from the air. These articles celebrated, among other things, the achievement of the “Italian Argonauts,” the long-distance pilots organized by the Fascist air ace, geopolitical strategist, and later governor of Italy's Libyan empire, Italo Balbo (Dreikhausen 1985; Segre 1987; Atkinson 1993).

The airborne camera simultaneously realized geography's mission—to provide accurate description of the entire global surface—as it bore witness to a new perspective on that surface: “the airman's vision” which served as the foundation of twentieth-century geopolitical thought that would, in turn, influence some of the earliest commentaries on the Apollo photographs. “The airplane,” in Antoine de St. Exupéry's words, “has unveiled for us the true face of the earth” (Bunkse 1990). The pilot's Olym-

pian perspective was privileged, however. Only a “few”—Charles Lindberg in the United States, Balbo in Italy—were mythologized as modern Apollos, youthful gods whose missions took them above and beyond the mundane life of earthbound mortals and gave them a uniquely modern *vision*. The romance and power attached to the aerial view at this time are menacingly apparent in the opening scenes of Leni Riefenstahl's Nazi propaganda movie, *Triumph of the Will*, in which an airborne camera follows the Führer's plane through the clouds, providing our's and Hitler's mastering gaze with quasi-cartographic glimpses of the German landscape below.

The romantic association of (generally male) youth, power, and will with the Apollonian perspective offered by air flight allowed for an heroic construction that attributed the airman with distinctively Modern qualities of scientific objectivity, technical mastery, global vision and, ultimately, *mission*. The last of these terms has been closely associated, of course, with the interlocking discourses of religious conversion and military rule that have long structured the imperial imagination in the West.⁸ These attributes were further reinforced by the aerial engagements of World War II (Gruffudd 1991) and later informed the selection and public personae of American astronauts throughout the space race in the 1960s. As Michael Smith (1983) has pointed out, the alliance of technology and gender loomed prominently in the representation of early American astronauts (all of them test pilots) as “helmsmen.” *Time* portrayed John Glenn as “a latter day Apollo” and Alan Shepard as the new Lindberg; and the ubiquitous use of “mission” resonates through the entire Apollo program.

Global Airlines

Rapid development of commercial jet airplanes and the falling real cost of air travel in the post-war years enabled growing numbers of Americans and Europeans to experience the aerial perspective. By the late 1950s, the DC8 and Boeing 707 were bringing long-distance flight within the range of business and recreational travelers in the rich countries of the world. By the early 1970s, wide-bodied “jumbo” jets, the Boeing 747 for example, further reduced the cost of air travel; and, flying

at altitudes up to 45,000 feet, they offered extended views of the Earth's surface to ordinary families in the West. The Olympian perspective on the Earth which just thirty years earlier had been the privilege of a small number of cultural heroes was now becoming commonplace. Although the slow-moving panorama visible from the window of a jet is not recognizable cartographically unless we are already acquainted with a regional map of the area, air travel has familiarized nonetheless large numbers with the synoptic, high-altitude gaze over the Earth and enabled many others to share vicariously the astronaut's perspective on our planet. But even these experiences did not fully prepare people for the global views provided by *Earthrise* and 22727.

Whatever the role of the post-war airline corporations in elevating the *image* of the globe to a more central place in American cultural consciousness, America's fascination with the globe as a symbol of modernity was already apparent in the period between the World Wars. Earlier I referred to the long history of using globes as an emblem of empire. The vast globes constructed in the late nineteenth century consciously signified the universalist claims of European imperialism, whether commercial, as in their emblematic usage in Universal Exhibitions in the 1890s, or spiritual, as in their popularity among Christian missionary societies.⁹ Similarly, the use of globes on colonial postage stamps signified a world unified by postal and telegraph communications. And technical advances early in this century—advances that permitted accurate inscription of the entire pattern of land and sea areas on the globe's surface—further enhanced the globe's appeal as an icon of progress for institutions and corporations, sacred or secular, that claimed worldwide links.

The media, communications, and transportation were obviously attracted to the emblematic significance of the globe. Newspapers, especially in North America, used the words "world" and "globe" in their titles and constructed globes in or on their buildings (Domosh 1989). In the 1930s, a revolving aluminum globe, measuring 12 feet in diameter and weighing 2 tons (at a scale of 1:3,480,000), was mounted on the top of the *New York News'* building. It became one of the landmarks of New York's Modernist skyline, as familiar to

New Yorkers as was the *Daily Planet* to readers of Marvel Comics' *Superman*. In the same decade, the American Bible Society and the Christian Science Publishing House in Boston, both dedicated to world-wide evangelism, commissioned large globes (50 inches and 30 feet respectively) to signify the geographical scope of their "mission." The links between the globe and Modernism in the 1930s were strengthened also by usage of the globe as a logo by Hollywood movie studios, while the identification of the globe with Modernist culture received its ultimate imprimatur with the construction of a hollow globe, 13.5 feet in diameter, for the Museum of Modern Art in New York which the public was invited to enter to view the world from a central stage (Fisher and Muller 1944). The post-war period continued the theme: the central structure of the New York World's Fair in 1964/65, the vast Unisphere, consisted of an open global frame formed by the graticule to which relief maps of the continents were attached, while Disneyworld's 17-story silver geosphere, "Spaceship Earth," traced the history of communications.

International airlines in the post-war years were likewise captivated by globes and world maps as visual descriptors of their commercial activities. Not only did globes graphically demonstrate the scope of their route systems, they conveyed also a sense of scale and importance, regardless of the density of the route network. Thus the globe, together with the national flag, became a favored logo for airlines. During the 1940s and 1950s, the first truly international airlines, predominantly American, erected gigantic globes as decorative and declarative statements at their head offices. Pan American for example, commissioned a globe 10 feet in diameter and 1:4 million in scale for its Miami office. In the late 1950s, Trans World Airways (TWA) established an "air-world" education department with the declared aim of increasing passenger traffic by removing the fear of flying and making Americans air-minded. Addressing the first International Globe Conference in Vienna in 1962, Trans World's chief officer, Paul L. Dengler, described one of its programs which carried selected university education majors to Europe on a "flying seminar." Lectures were delivered in front of a large globe illuminated from within and carrying the letters TWA. The seminar's theme, "air-

mindfulness," invoked a vision of global citizenship that would overcome American isolationism and provincialism and induce understanding of "the consequences of the daily shrinking process of time and space on our globe." "Of course," continued Dengler, "you should remain good patriots of your own nation . . . but at the same time you must try to think globally . . . Let yourself be convinced that we are, all of us, in the same boat, for better or worse, whether you like it or not" (Dengler 1962:94).

Dengler's emphasis on the threat of the A-bomb and total war as the compelling reasons for TWA's initiative imparted a significance well beyond commercial promotion; and his terminology anticipated language and terms that would be used later in connection with the Apollo photographs: "our globe, formerly the image of a mysticism and unknown remoteness, shrinks before our eyes to a tiny apple" (Dengler 1962:95).

Textualizing Apollo's Whole-Earth Images

The post-war years witnessed both the dismemberment of the European empires and the full panoply of America's global power. Replacing European dominion while retaining so many of the old continent's sacred and secular cultural assumptions, the United States inherited the European *mission civilizatrice*. A combination of commercial acumen and a universalist vision projected the American way as the model of enlightened civic virtue to which all the world's peoples should naturally aspire. America's own constitutional principles and its deep ideological opposition to the one remaining territorial empire, the USSR, denied the United States traditional forms of imperial domination in territorial acquisition. The American empire required a new structure and a new language of *imperium* (McDougall 1985). The structure was economic, based on America's total domination of immediate post-war industrial production and international trade; the language was triumphal, and predicated on American democracy as a universalist model that, in the eyes of many in the establishment, had proven its moral virtue by defeating fas-

cism and uniting the diverse peoples of the world into one nation (*e pluribus unum*).

"The idea of one world," wrote Friedrich Tenbruch in tracing the emergence of "one worldism" as a totalizing discourse informing America's post-war sense of mission, "could only spring from the ground of Christendom" (Tenbruch 1990:198). Given that versions of Islam also have universalist proselytizing aspirations (as does Marxism), Tenbruch's claim may perhaps more accurately be made for Judeo-Christian monotheism rather than Christendom alone. The United States, nonetheless, has been the heir to a universalizing culture that is embodied in the Enlightenment principles of its constitutional philosophy. Appropriately therefore, the globe has served as the graphic motif for American empire, and it has been deployed not only by American corporations and missionary groups, but also by American-sponsored international agencies like the United Nations. But in one key respect, this totalizing iconography was different. The globe was newly—and subtly—interpreted as a sign of spatial and social *incorporation* rather than of direct imperial domination.

The Apollo space program was inextricably linked to this American sense of planetary imperial mission (McDougall 1985; Logsdon 1970). Lyndon Johnson, speaking in the debate which led to NASA's establishment in 1958, proclaimed: "The Roman Empire controlled the world because it could build roads . . . the British Empire was dominant because it had ships. In the air age we were powerful because we had airplanes. Now the Communists have established a foothold in outer space." While competition with the Soviet Union certainly resonated in John F. Kennedy's May 1961 address to Congress committing the nation "to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth," the dominant rhetoric of Apollo spoke of an incorporative vision of global human mission rather than of dominion or territorial control; and as such, that rhetoric was unremarkably consonant with much of post-war American foreign policy. Imperial expansion, henceforth, was to be directed peacefully beyond the Earth for the benefit of "all mankind" rather than into the territories of other human cultures.

Apollo 8 was launched on December 21,

1968, and returned to Earth on December 27. Its spectacular success in escaping Earth orbit, coasting to the Moon, orbiting it and returning to a safe splashdown gained added impact from the fact that the journey spanned the Christmas holiday. Not only did this timing maximize a global television audience made possible by recently established satellite links, but it also ensured the harnessing of the various associations of Christmas, both sacred and secular, with the mission's representation.¹⁰ A new star was in the heavens, with a message of peace and goodwill to all mankind. The news media capitalized on these poetic opportunities to align traditional Christian universalism to the American vision of global harmony already articulated by Dengler, among others. As NASA's news clippings file reveals, American newspapers exploited the sacred meanings of Christmas as a time of rebirth, harmony and peace in stressing the venture's pan-human themes (Figure 8).

While American patriotism was evident in American news coverage, the patriotic theme was largely subordinated to a humanist rhetoric of peace and harmony, influenced perhaps by the reports of heavy American casualties sustained in Vietnam. The three astronauts themselves—Frank Borman, James Lovell, and William Anders—reinforced the religious theme by transmitting on Christmas morning an unscheduled reading of the cosmogonic narrative from the *Book of Genesis*, a selection that unknowingly echoed Renaissance cosmographers who related the cartographic image of the world to the Christian narration of its creation (Rabasa 1985:6). In his commentaries to Mission Control during the ten lunar orbits, Lovell compared the Moon's dead surface, “essentially gray, with almost no color . . . much like plaster of Paris or a grayish beach sand,” with the appearance of a living Earth, visible as a bright silver ball to television viewers and as a swirl of blues, browns, and whites to the astronauts: “a grand oasis in the big vastness of space.” Frank Borman's response to this view of *Earthrise* once again echoed, albeit with less grace, Seneca's words in Abraham Ortelius's world atlas: “Is this that pinpoint which is divided by sword and fire among so many nations? How ridiculous are the boundaries of mortals.” In Borman's rendering:

When you're finally up at the moon looking back at earth, all those differences and nationalistic traits are pretty well going to blend and you're going to

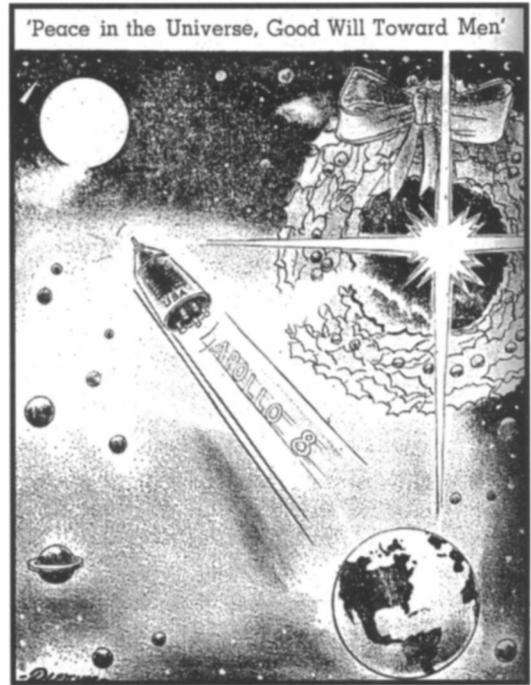


Figure 8. *Peace in the Universe.* Cartoon by Pleycher, *Times-Picayune*, New Orleans, December 24, 1968. Courtesy of Times-Picayune.

get a concept that maybe this is really one world and why the hell can't we learn to live together like decent people. (Borman, quoted in *Newsweek*, December 23, 1968)

These responses to the Apollo 8 mission refocused the public mind, shifting its attention from the project's official objective (a Moon landing) toward the astronauts' view of their “home planet.” This was dramatically reinforced with publication of *Earthrise* two days after splashdown.

Riders on the Earth

The cultural reception of *Earthrise* owed much to certain texts written during and immediately after the mission. These drew upon and reinforced the interlocking discourses that I have outlined and that prepared the ground for the ensuing reception of 22727. Perhaps the most significant of these texts was a short essay written by the American poet Archibald MacLeish and published in *The New York*

Times on Christmas Day, December 25, 1968, as the astronauts circled the Moon. *Riders on the Earth* was reproduced and quoted approvingly in the American press in the days that followed as well as in writings on space photography of Earth in many years to come. Accompanied by a color center-fold reproduction of *Earthrise*, it was quoted again in the May 1969 *National Geographic* coverage of the Apollo 8 mission (*National Geographic* 1969). MacLeish's essay opened with a summary comment on the history of Western cosmology: "Men's conception of themselves has always depended on their notions of the earth." The displacement of humanity by Copernican and Newtonian science from the center of a divinely-planned creation, he noted, has made us "helpless victims . . . of force" on a small, wet, spinning planet. In the few hours of Apollo's lunar orbits, he claimed, the conception had altered irrevocably once again:

For the first time in all of time men have seen the earth: seen it not as continents or oceans from the little distance of a hundred miles or two or three, but seen it from the depths of space; seen it whole and round and beautiful and small. (*New York Times*, December 25, 1968)

Such an image of Earth, said MacLeish, would remake our image of humankind, now neither grand actors at the center of creation nor helpless victims off its margins, but in true proportion with the planet:

To see the earth as it truly is, small and blue and beautiful in that eternal silence in which it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold—brothers who know now that they are truly brothers. (*New York Times* December 25, 1968)

MacLeish's words dramatically underline Modernist beliefs in the mimetic truth of photography, the power of the synoptic gaze (which his language clearly regarded as gendered male), and equally, one-worldism, that is, the claims of American missionary ideology, of which this image stands as empirical proof. As NASA's *Current News* clippings file on the Apollo project ceaselessly reveals, the American press reproduced MacLeish's final paragraph with remarkable consistency, while its cadences echoed in the captions which henceforth textualized Earth photography from space.

Apollo 11's lunar landing in July 1969 naturally focused attention on the Moon rather than the Earth. However, the poetics of the

event rapidly turned the gaze away from the objective of discovery and toward the meaning of the terrestrial globe. James Dickey's widely quoted celebratory verse, which first appeared in *Life Magazine* in early August, 1969, is clearly influenced by the *Earthrise* photograph. Dickey's verse makes the Earth the principal focus of attention for the lunar walkers, and he binds their perspective with the traditional gaze of landscape aesthetics by referencing one of the best-known landscape poems in the English language:

. . . The Human Planet trembles in
its black
Sky with what we do. I can see it hanging in the
god-gold only
Brother of your face. We are this World: we are
The only men. What hope is there at home
In the azure of breath, or here with the stone
Dead secret? My massive clothes bubble around
me
Crackling with static and Gray's
Elegy helplessly coming
From my heart, and I say I think something
From high school I remember now
Fades the glimmering landscape from the sight and
all the air
A solemn stillness holds. Earth glimmers
And in its air-color a solemn stillness holds
It. O brother! Earth-faced god! Apollo!
(Dickey 1969)

While Gray had gazed upon a moonlit churchyard and contemplated human mortality in the community of an English village, Dickey's astronauts raise their eyes towards a Moon-like Earth from the cold lunar landscape and contemplate brotherhood in a global village. From their perspective, the appearance of divine Apollo attaches itself to the Earth rather than to themselves or to their flimsy chariot.

In his own celebration of the Moon landing, MacLeish followed a similar theme, inspired also by the image of *Earthrise*. Although awed by the promethean achievement in touching the Moon, he turns immediately from its lifeless surface to the rising Earth:

Over us, more beautiful than the moon, a
moon, a wonder to us, unattainable,
a longing past the reach of longing,
a light beyond our light, our lives—perhaps
a meaning to us . . .
O a meaning!
over us on these silent beaches the bright
earth,
presence among us
(MacLeish 1969)

Spacewalkers

MacLeish's and Dickey's verse responds imaginatively to the photographic images returned from space in terms of Earth-bound, landscape conventions. The astronauts' comments, however, put a different gloss on these images. Their words draw upon an alternative and more intimate tradition of environmental relations between humanity and its terrestrial home, which I here refer to as *Whole-earth* (Glacken 1967). In an interview given soon after the Apollo 8 mission, William Anders, who shot the *Earthrise* photograph, described his experience at the time. The capsule was returning from the lunar shadow after the first orbit of the Moon. The three astronauts were acutely conscious of being literally on the dark side of the lunar landscape, beyond any possible contact with Earth, utterly isolated in the blackness of space:

The Earth looked so tiny in the heavens that there were times during the Apollo 8 mission when I had trouble finding it. If you can imagine yourself in a darkened room with only one visible object, a small blue-green sphere about the size of a Christmas-tree ornament, then you can begin to grasp what the Earth looks like from space. I think that all of us subconsciously think that the Earth is flat or at least almost infinite. Let me assure you that, rather than a massive giant, it should be thought of as the fragile Christmas-tree ball which we should handle with care. (quoted in Nicks 1970:14)

Although Anders' words rework the significance of the coincidence between Christmas and the timing of the flight, their meaning extends beyond reference to universal peace and human goodwill derived from its historic religious associations to embrace the more secular, rooted, and domestic interpretation of American popular culture (McGreevy 1990). The Christmas tree, of course, is more domestic than sacred, more evocative of images of home and family than of church and faith. The ornament suggests a child's innocent excitement, while the concluding statement insists on fragility and the possibility of irreparable damage by childish clumsiness. The metaphor can, of course, have the opposite effect of that intended: it can trivialize Earth, making it a mere plaything. Whichever way we choose to understand his metaphor, Anders invokes an association that is more local and homely and less visual, a more tactile sense of feeling and holding the Earth rather than of simply seeing

it. It was a sense that resonated oddly with the contrapuntal response of proponents of progressive one-worldism and Christian mission.

These divergent ways of interpreting the image of a floating Earth at the turn of the 1970s capture at once the Modernist technological faith that had launched the Apollo project ten years earlier and the gnawing sense of mistrust in that faith that was increasingly apparent in the closing years of the 1960s. *Spaceship Earth*, for example, was a term originated by another arch-progressive and Modernist thinker, Buckminster Fuller. By entitling his late-1969 essay "Vertical is to Live—Horizontal is to Die," Fuller conveys the spirit of progress that he saw as embodied in the space project. His conclusion, while acknowledging the limitations imposed by Earth's isolation in an organically dead space, draws upon a series of engineering metaphors to underwrite a sense of technological optimism: "our space-vehicle Earth and its life-energy-giving Sun and tide-pumping Moon can provide ample sustenance and power for all humanity's needs" (Fuller 1969:88). But such optimism was increasingly less secure. In the three years that had elapsed between the Moon landing and the final Apollo mission that produced 22727, the cultural currency of the Modernist notion of progress through technology had been devalued, as indeed had faith in America's global mission. Once the objective of a Moon landing had been achieved, public interest returned rapidly to terrestrial matters. As one recent writer observes, the four years that separate *Earthrise* from 22727, 1968–1972, mark the era of the "prophets of doom," when a spate of gloomy futurologies heralded the global environment movement (McCormick 1989).

Press commentary on the final Apollo launch consistently weighed the costs of the mission, as against its human benefits, and found them too high. *Time* captured the dramatic change in mood. In 1968, *Time's* editors heralded the Apollo 8 crew as "men of the year" against a backdrop of the *Earthrise* photograph and the simple caption "Dawn." The award was "not merely for the dazzling technology of their achievement, but for the larger view of our planet and the fundamental unity of man" (*Time* 1968). On the return of Apollo 17, things had changed. In December 1972, *Time* published a retrospective essay that regarded the night launch as "a triumph of spectacle" or-

chestrated by NASA to revive flagging public interest. The result “may have been as much theatrical effect,” the correspondent continued, “as spiritual experience,” a feature, parenthetically, that we often associate with post-modern cultural events.¹¹ The tone of the essay was reflective and its theme humility. It cautioned against claims of having conquered space and appealed instead for reshaping our attitudes toward “the tired Earth.”

Although Apollo 17 returned with 22727, that fact was inundated in a rising tide of self-questioning, about limits to growth and the population explosion, about global pollution and poverty, about social injustice. A tired and battered America had begun the last pull-out of troops from Vietnam, and *Time's* essay accurately reflected the prevailing media response to the Apollo program and to the political pressures on NASA to bring the project to a premature end. 22727 and *Earthrise* thus sit ambiguously between two textual constructions: the progressive *One-worldism* of late American Modernism and a *Whole-earth* environmentalism which, though historically deep-rooted, is such a significant aspect of postmodern culture (Cosgrove 1990; Oelschlaeger 1991).

While these two constructions stand in opposition to one another, they emerge from a common stock of cultural attitudes towards America's geopolitical role. I have already noted Archibald MacLeish's significant contribution to early interpretations of the space photographs. Closer scrutiny of his essay places it even more firmly within the Modernist geographical imagination. Among American intellectuals, MacLeish was an appropriate choice as a commentator on the Apollo achievement. Born in 1892 and educated at Yale and Harvard, he was a member of the white, Anglo-Saxon, protestant, male elite whose domination of official American culture went largely unchallenged for the better part of this century. A poet and playwright, MacLeish was closely associated with the Democratic establishment, serving briefly in Franklin D. Roosevelt's administration and preceding Daniel Boorstin as Librarian of Congress. His writings consistently celebrated a democratic and expansionist, but scarcely polyvocal, vision of American society, based upon the universalist humanism of Tom Paine and the Founding Fathers. A twentieth-century Walt

Whitman, his vision of America was predicated upon free space that granted “liberty a farm-yard wide” to a society characterized by the common decencies of good husbandry.

MacLeish's best-known poem, *America was Promises* (1939), employs a similar meter and conveys the same sense of mission that he would use three decades later in his *Voyage to the Moon*:

America was promises—to whom?
Jefferson knew:
Declared it before God and before history:
Declares it still in the remembering tomb.
The promises were Man's: the land was his—
Man endowed by his creator

.....

America is promises to
Take!
America is promises to
Us
To take them
Brutally
With love but
Take them

(MacLeish 1939)

The imperialist, masculine, and Christian dimensions of the American dream could hardly have been more unambiguously expressed. Having argued strongly against isolationism in the immediate pre-war years, MacLeish's *Riders on the Earth* offers a powerful restatement of his sense of global mission. Indeed, his 1968 theme was anticipated not only in *America was Promises* but even more clearly in his 1942 essay *The Image of Victory*, published originally for *Atlantic Monthly*, and later reproduced in a symposium that year on political geography. This collection of papers on space and geopolitics, which included contributions from Isiah Bowman, Halford Mackinder, Ellsworth Huntington, and Griffith Taylor, was intended to challenge the influence of German geopolitical science in American thought as well as to steer a course between American isolationism and imperialism. As the editors put it:

we have seen the dangerous beginnings of an American geopolitics, with blueprints for an American imperialism riding the waves of the future. It favors a disillusioned balance-of-power solution on the basis of regional groupings, in preparation of what the sponsors of such “realistic” plans consider inevitable: the Third World War. The editors and writers of this book . . . agree that acceptance of the ideology and creed of geopolitics would be a dangerous step towards international Fascism. (Weigert and Stefansson 1944:x)

MacLeish's contribution to this liberal goal establishes a direct link between the textualizing of *Earthrise* and the geopolitical discourses surrounding the airman's view of the globe at mid-century. *The Image of Victory* celebrates the airman as the model for the progress of mankind, the man to whom the vision of the global future is to be entrusted. Whoever wins the war, MacLeish claims, would win the future of the world, "its geography, its actual shape and meaning in mens' minds":

Never in all their history have men been able truly to conceive the world as one: a single sphere, a globe having the qualities of a globe, a round earth in which all the directions eventually meet, in which there is no center because every point, or none, is center—an equal earth which all men occupy as equals. The airman's earth, if free men make it, will be truly round: a globe in practice, not in theory. (MacLeish 1942:7)

For MacLeish therefore, and for many who thought like him, the Apollo project represented the crowning achievement of an American mission begun in 1941, a mission which would be realized not in flag-waving nationalism but in mankind's universal destiny. The irony that the mission he celebrated was powered by a "cold" war between two "regional groupings" seems to have been lost on MacLeish. The photographs that the American astronauts brought back to Earth seemed, for him, dramatic confirmation of a universalist, implicitly Christian vision. That they were unexpected and unplanned, that they were taken by *men* who saw the Earth as it really is, that they were eyewitnesses to global unity and the new age that he had forecast in 1942, powerfully confirmed MacLeish's faith in America's promises. His commentary on *Earthrise* thus drew upon and sought to confirm this deeply embedded set of meanings.

One-World/Whole-Earth

Archibald MacLeish was 76 when he wrote *Riders on the Earth*. Like Buckminster Fuller, he represented a passing rather than a coming generation. Others, many of whom had known only the post-war world of the *Pax Americana*, interpreted the space images differently, reading them through an alternative set of texts, even unconsciously projecting onto them features of an American cultural tradition of isola-

tionism that MacLeish and his peers had sought to reject. Through television reports and pictures, many younger observers detected a reality of violent oppression beneath the universalist and humanist rhetoric of the American *imperium*. For them, the airman's inheritance was a B52 bomber wreaking indiscriminate destruction on the fields and forests of Southeast Asia. For others, especially for women, MacLeish's images of "men" "taking" America, and indeed the Earth, "brutally" meant just that—and in the most violent ways. They responded to an alternative representation, less synoptic and distanced, articulated in the astronauts' own sensibilities. Consider Michael Collins' very personal record of isolation as he circled the Moon's dark side, the single occupant of the Command Module during the Apollo 11 landing: "I am alone now, truly alone, and absolutely isolated from any known life . . . I am it. If a count were taken, the score would be three billion plus two on the other side of the Moon, and one plus God only knows what on this side . . ." Then, as the Earth rose over the lunar horizon: "[It seemed] so small I could blot it out of the universe simply by holding up my thumb . . . It suddenly struck me that that tiny pea, pretty and blue, was the earth . . . I didn't feel like a giant. I felt very, very small (quoted in Ferris 1984: 106).

Collins' emphasis on *feeling* rather than seeing, his recognition of limits to the power inherent in the gaze which the technological miracle of his craft allowed him, his reflections on humility and the vulnerable fragility of the Earth, and his visions of intense *localism*, resonated with the sensibilities of earthbound environmentalists such as Aldo Leopold, Fraser Darling, and Rachel Carson (Worster 1988). Seen from 200,000 miles, Earth showed no signs of brotherhood or common humanity, nor even human agency. *Man* seemed no more central to existence than any other creature. In fact, what life there was seemed to inhere in the planet as a *lifeworld* rather than in some ordained hierarchy of creatures on its surface.

The astronauts' words articulated the *sublimity* of the Apollo photographs, their graphic representation of the world as "a whole, animated and moved by inward forces" (Humboldt 1847:xviii), forces so balanced, intricate, and powerful that in their presence the only valid human responses were awe, wonder,

and humility. Here the sense of sight is subordinated to more visceral responses. Like the imperial reading of the globe, this vitalist interpretation of Earth has a long and distinguished historical pedigree (Livingstone 1992; Glacken 1967), but for much of the twentieth century it largely seems to have been suppressed in the geographical imagination, defeated by the empiricist and technological imperatives of Modernism (but see Matless 1992a; 1992b). In the 1960s, however, certain scientific developments anticipated a vitalist revival. The scholarly acceptance of plate tectonics and of historical variation in global magnetic polarity signalled new scientific perspectives on the Earth. These would gain enormous stimulus with the publication of James Lovelock's *Gaia* hypothesis in the 1970s.¹²

In popular culture too, life on Earth was read in new ways. Computer-based global inventories, made possible through the very agencies and technologies that an optimistic Modernism had generated, seemed to reveal a nature that had been scarred and brutalized by human activity rather than "improved" for a common humanity, an Earth despoiled rather than adorned by human achievement. In the four years between *Earthrise* and 22727, a spate of texts predicted environmental doomsday as a consequence of global human activity: Paul Ehrlich's *Population Bomb* (1968), Barry Commoner's *The Closing Circle* (1971), the Club of Rome's *Limits to Growth* (1972), and Ehrlich and Ehrlich's *Blueprint for Survival* (1972). It was their reading of the Earth as a unitary and fragile organism that placed *Earthrise* on the dustjacket of James Lovelock's text *Gaia* (1978), and 22727 on the cover of *The Whole Earth Review*. Testimony to the impact of the message conveyed by these texts was the celebration of the first "Earth Day" in the United States in 1970.

Emphasis on the loneliness of Earth in the blackness of space, so powerfully represented in 22727, drew upon a reading of America as old as William Bradford and the Puritan Fathers, of the New World as mankind's last best hope, of a people cut off from the rest of life, required to attend to their own redemption and to seek moral renewal within the confines of its separate space (Worster 1988). It was an attitude against which *One-world* advocates like Dengler and MacLeish had struggled—and prevailed—in the early years of World War II. But

three decades hence, in the 1970s, that attitude resurfaced as an alternative projection of American culture, to the *Whole-earth*.

Since the middle years of the 1970s, the demand for the Apollo photographs has been continuous and strong. In 1990 alone, 90 percent of the photographic requests to the Johnson Space Center were for 22727 and 1,280 copies were mailed (M. Gentry 1991, personal communication). Its public use continues to reflect the two readings identified here. The post-war sense of *One-world* as America's salvational mission, though more difficult to sustain in an era of American economic decline, the passing of the bipolar conflict that provided the ideological foundation for that mission, and some two decades of post-colonialist criticism, this global vision has not entirely disappeared as a mastering gaze. High-technology industries, largely concerned with communication (computers, telecommunications, media, and transportation), have dominated global economic trends over the past decade, and for them 22727 serves as an appropriate successor to the global corporate symbols of the post-war years. They persist in the *One-world* reading in which the Apollo image signifies secular mastery of the world through spatial control (Figure 9). By contrast, for *green* environmental organizations (alternative political parties, ecological pressure groups, educational agencies), *Earthrise* and 22727 represent a quasi-spiritual interconnectedness and the vulnerability of terrestrial life. For them the *Whole-earth* reading signifies the necessity of planetary stewardship, best practiced from an insider's localist position. In Western culture both readings originate in *Genesis*, the text that captioned the first televised pictures of *Earthrise*. They continue to intersect today in the varied uses of the Apollo space images.

Critical attention to the complex intertextuality of these images calls into question any neat separation of their associated readings, and requires us to confront instead certain shared features of *One-world* and *Whole-earth* ideologies. Both are totalizing discourses that effectively ignore the *geographical* specificity of cartographic representation on 22727. Read cartographically, this representation is as partial, regional, and perspectival as any other (Harley 1992); it *maps* Africa and Antarctica. But 22727 is best read iconically and not car-



Figure 9. *One-world and high technology.* Advertisement for TRW Engines Inc., Cincinnati using composite of *Earthrise* and 22727 appearing in *Fortune Magazine*, April 23, 1990. ©TRW Inc., 1990.

tographically; it is iconic. Both interpretations insist on the globality of the image; both are inattentive to the specificity of their cultural and historical assumptions; and, in practice, both obscure local perspectives on the world in their claims to speak for a common humanity. Each effectively exemplifies the Apollonian urge to establish a transcendental, univocal, and universally valid vantage point from which to sketch a totalizing discourse. Each, in appealing to this image, proclaims a geographical identity for a unitary world, although the *Whole-earth* reading opens the possibility of non-visual appropriation and, thus perhaps, a more Dionysian response. Fundamentally, the geographical imaginations that both readings articulate are obdurately Western and ethnocentric. In both cases, *Earthrise* and 22727 serve well. The apparent objectivity of the photography and the positioning of the camera so

far outside the bounds of Earth seemingly constitute an unchallengeable vantage point.

Some commentators have noted the mastering perspectives on the Apollo images, and they have drawn on psychoanalytic and feminist theory to challenge their cultural authority—albeit without examining the specificity of the photographs. Peter Bishop has sought to unravel the historical routes whereby the *Whole-earth* image acquired its “present massive coherence.” He finds in it echoes of an archetype of unity for which an alienated West aches in the face of the immense voids of space and time that Modern science has created for humanity’s fragmented psyche. “From evolutionary imaginings came images of humanity crushed beneath the burden of a remorseless continuity or negated into a state of despairing *ennui* by a limitless expanse of space and time” (Bishop 1986:68). The picture

of the earthly disk appears reassuring as an image of universal holism, but the appearance of this "calm oceanic metaphor" coincided, Bishop notes, with a heightened sense of global crisis in the post-war era of nuclear deterrence. All imaginings are attended by their shadow, and the shadow of the holistic Earth is one of fragmentation:

The questions posed by a global imagining are in themselves *shattering*. They consistently fragment the comfort one might take in a premature holism . . . this image was born simultaneously with one of its own doom . . . These murmurings are the world calling attention to itself, reestablishing itself as a psychic reality. (Bishop 1986:69)

Bishop's analysis recognizes the inspirational quality of the *Whole-earth* image, its simultaneous appeal to global utopia and global destruction. Like Michael Collins, he reminds us of the sublime in these images, whose appeal to awe and wonder is more than merely uplifting and humbling; it is also terrifying. *Earthrise* and 22727 share this quality. The former contrasts the shining but shadowed silver Earth against the deathly gray of a cratered lunar landscape that seems almost post-nuclear;¹³ the latter, the majestic color, geometric purity, and harmonic unity of earth, water, and air with the stygian infinity of its encircling void.

In contrast to Bishop, Yaakov Jerome Gaarb offers a more political critique of the Apollo photographs. He points out the inherent irony of *Whole-earth* images which, while read as representations of the round globe, in reality show a disk, a two-dimensional image that represents the Earth according to established pictorial conventions and that achieves coherence only within these conventions. 22727 may be compared with the "bird's eye" view of landscape which has conflated cartography and landscape painting since the European Renaissance. It is a perspective which privileges vision over other senses in the mimetic achievement, rendering the object of vision passive and feminized, offering up merely voyeuristic pleasure. Certainly the sustained reference to *seeing the world as it really is*, to *men and brotherhood*, together with the references to the landscape tradition found in MacLeish's and Dickey's *One-world* writings on the photographs lend support to this interpretation. Gaarb argues not only that 22727 is "the *magnum opus* of patriarchal consciousness," extended to the whole of the natural world, but

that the Apollo project represents a male fantasy:

It's natural the Boys should whoop it up for
so huge a phallic triumph, an adventure
it would not have occurred to women
to think worthwhile, . . .
(W. H. Auden, quoted in Gaarb 1990:272)

The alternative *Whole-earth* interpretation of 22727, with its emphases on the "veiling" of Earth in atmosphere, its fragility, and vulnerability, might also be seen as gendering a virgin/mother Earth as *Other* to a male consciousness. As a self-styled ecofeminist, Gaarb is less comfortable with this conclusion, enquiring whether the *Whole-earth* image retains sufficient virtue to be rescued from the alienating and exploitative impulses it embodies. His answer draws upon sentiments similar to those identified by Bishop: that the very distance and bleak isolation of the Earth represented in 22727 perhaps stimulates "a deep ache of longing for a beauty we somehow cannot touch." Unlike Bishop, he does not identify the shadow that accompanies such sublimity but rather appeals to us to "see without staring, and allow the Earth to speak to us through this image, to declare its own subjecthood" (Gaarb 1990:276–277). Perhaps the sheer distance of the Earth in these images, which obscures their cartography and renders them almost *tenable*, constitutes the challenge that they present to the gaze.

Conclusion

Analyses of the Apollo photographs, of their composition, color and content, the conditions of their production, the contexts of their reproduction, and the texts that accompanied their cultural reception, give some support to both these interpretations of the *Whole-earth* image even as they draw attention to an alternative, and still popular, *One-world* reading. These two discourses associated with the photographs draw upon and extend ideas of human territoriality that have deep historical, geographical, and cultural roots in Western imaginings. *One-world* is a geopolitical conception coeval with the European and Christian sense of *imperium*. It signifies the expansion of a specific socio-economic order across space. Throughout Western history, this has been

based in large measure on military and political power. Today's *imperium* is primarily an economic and technological order of which 22727's erasure of political boundaries allows representation in the networks of financial, media, or communications links etched across an unbounded globe. *Whole-earth* is, by contrast, an environmentalist conception that appeals to the organic and spiritual unity of terrestrial life. Humans are incorporated through visceral bonds between land and life (individual, family, community), bonds that have traditionally been localized, frequently as mystical ties of blood and soil. Despite this rhetoric of localism, *Whole-earth* readings of the Apollo images have difficulty keeping faith with the local because the photograph's erasure of human signs implies the extension of organic bonds across all humanity and the entire globe. In this too we might note the echoes of Western Christianity's traditional missionary imperative. A *Whole-earth* interpretation seems drawn, like so many Renaissance globe gazers, toward a transcendental vitalism as a basis for universal order and harmony.

It is highly questionable whether the conceptions of space, environment, and humanity drawn from these images can reconcile such divergent but equally totalizing tendencies in Western discourse. An alternative approach might avoid the "visualist assumption" underlying the idea of the world as a globe and replace it with an older notion of the world as *sphere*, a body that *contains* life, including human life-worlds and that is itself contained within greater spheres beyond (Ingold 1992)—spheres that are completely absent from the Apollo photographs. Such a perspective, in addition to immediately localizing us within the world rather than beyond it, might, in John Kennedy's words and Michael Collins's hopes, "return us safely to the earth."

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Notes

1. The distance is approximate since it was not recorded by the crew. It is also worth mentioning that the actual photographer remains unknown. The three crew members aboard Apollo 17, Gene Sherman, Ron Evans, and Jack Schmitt, have refused to state which of them took the sequence. I do not deal in this essay with Soviet space photographs. The quality of their film was much lower than that available to American crews, pictures appeared red-tinged and muddied, with poor color resolution. Also, they produced no whole Earth photographs taken by hand, and none of their pictures achieved the widespread cultural impact of the images discussed here.
2. Ptolemy's fourth projection is based upon a construction which assumes an observer standing beyond the globe, fixing the line of sight on a vanishing point along the earth's axis. A famous engraving by Albrecht Dürer illustrates the projection with an eye looking in on the Earth. It was widely reproduced in sixteenth-century publications of Ptolemy's *Geography*.
3. Considerable critical attention has recently been given to the significance attached to *seeing* as the dominant mode of power/knowledge in Western society since the fifteenth century and its connection to the philosophical separation of the active human subject from a passive, objective nature. The distanced and gendered character of the gaze has become a dominant theme in some feminist theory (Bryson 1983; Haraway 1991).
4. The 1958 Space Act establishing NASA directed the agency to place all of the information that it gathered into the public domain, unless specifically excluded for reasons of national security. Any citizen of the United States may therefore request and reproduce the Apollo space photographs without fee.
5. This paper deals only with American and European receptions of the Apollo images. Beyond the Western world they may have been understood rather differently. I am aware that the photographs have been widely reproduced in Islamic countries and beyond, but explication of the meanings that other cultures attach to them would require detailed cultural analysis.
6. Most of the scientific literature dealing with space photography gives only passing attention to the specific images discussed here since they are of little scientific value. Photography's importance is decidedly subordinate to that of remote sensing. Writings on the *Whole-earth* image are discussed below; in general they ignore individ-

ual pictures and do not stress the uniqueness of the images specified here.

7. NASA used John Glenn's photography of Earth to support its case for manned space flight on the grounds that the human photographer was much more flexible in identifying good targets than pre-set mechanical cameras. The debate is discussed in detail in Mack (1990). On the significance given to the graphic representation of the eyewitness account as historical evidence in an earlier period, see Fortini-Brown's (1988) discussion of Venetian narrative painting.
8. While a significant number of inter-war pilot heroes were women, Amy Johnston being the most famous, the pilot was characteristically *gendered* male, and certainly the *fighter* pilot was male.
9. The French geographer Elisée Reclus was responsible for the design of one of the largest globes ever produced; he designed it for the Paris Universal Exhibition of 1900. The great globe produced for the headquarters of the British Society for the Propagation of Christian Knowledge at the height of Britain's imperial domination now graces the entrance to the Cambridge University Library.
10. On the cultural significance of Christmas in the United States, see McGreevy (1990). For a poetic description of the universal celestial harmony associated with Christmas, see John Milton's *Ode on the Morning of Christ's Nativity*. The cosmographical associations of Christmas are profound, and relate not only to its occurrence at the winter solstice, but also the astrological associations of the Magi.
11. Turning important events into dramatic public spectacles, especially designed for large television audiences, has been regarded by many commentators as a characteristic feature of post-modernism. While not suggesting causation, it is worth noting that the period of the lunar space flights, and thus of *Whole-earth* photography (1968–1972), corresponds exactly with the years most often cited as the critical moment in the emergence of postmodern society (Harvey 1989). Michael Smith's (1983) essay emphasizes the consumerist features of the entire Apollo project and relates it to the growing significance of "commodity scientism" in American culture after 1950 (see also Sack 1992:1–26).
12. The revival of vitalist theories of Earth is one facet of modern environmentalism, itself stimulated by the Apollo photographs (Cosgrove 1990; Lovelock 1978). There are intriguing historical parallels here with the fifteenth-century European recovery of Ptolemy's method of projecting the globe and a concurrent revival of vitalism (Schmitt and Skinner 1988:199–300). The first-published (1482) Italian version of Ptolemy's *Geography* was a verse translation by Francesco Berlinghieri, a member of the Platonic Academy in Florence and close associate of its founder, the humanist and neo-platonist Marsilio Ficino, who wrote the dedication for the work.
13. There are some similarities between the land-

scape features of the lunar surface and those depicted in Richard Misrach's (1990) powerful photographs of the Nevada desert exploring the sublimity of a landscape devastated by nuclear testing.

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Cosgrove, Denis. 1994. Contested Global Visions: *One-World, Whole-Earth*, and the Apollo Space Photographs. *Annals of the Association of American Geographers* 84(2):270–294. Abstract.

The paper examines two photographs of the Earth taken during the Apollo Space program in 1968 and 1972 as representations of the Earth whose cartographic significance is of less importance than their relations with the contemporary Western geographical imagination. *Earthrise* and AS17-148-22727 are unique as eyewitness photographs of the terraqueous globe. They are interpreted within a historical context of seeing and representation in which Western culture has consistently associated the globe with Christianity and imperialism. The essay summarizes certain technical aspects of Apollo space photography, examines the iconography of the two images, and places them in the twentieth-century cultural contexts of aerial views, both military and civil, airborne photography, and geopolitics, while paying particular attention to the mastering gaze associated with these practices as well as the specifically American use of global iconography in the post-war period. Specific texts structured early cultural interpretation of the Apollo photographs, most notably the writings of the American Modernist intellectual Archibald MacLeish, the astronauts themselves, and the American press. These texts produce two distinct

but related interpretations, here termed *One-world* and *Whole-earth*. The respective uses of the Apollo space photographs as global spatial and environmental images over the past two decades reveal their significance in shaping aspects of the contemporary Western geographical imagination. **Key Words:** cartography, gaze, geographical imagination, geopolitics, globe, images, Modernism, *One-world*, representation, space photography, *Whole-earth*.