EARTHRISE: HOW MAN FIRST SAW THE EARTH

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1. Earthrise, seen for the first time by human eyes

On Christmas Eve 1968 three American astronauts were in orbit around the Moon: Frank Borman, James Lovell, and Bill Anders. The crew of Apollo 8 had been declared by the United Nations to be the 'envoys of mankind in outer space'; they were also its eyes.[1] They were already the first people to leave Earth orbit, the first to set eyes on the whole Earth, and the first to see the dark side of the Moon, but the most powerful experience still awaited them. For three orbits they gazed down on the lunar surface through their capsule's tiny windows as they carried out the checks and observations prescribed for almost every minute of this tightly-planned mission.

On the fourth orbit, as they began to emerge from the far side of the Moon, something happened. They were still out of radio contact with the Earth, but the on-board voice recorder captured their excitement.

> Borman: Oh my God! Look at that picture over there! Here's the Earth coming up. Wow, that is pretty!
> Anders: Hey, don't take that, it's not scheduled.
> Borman: (Laughter). You got a colour film, Jim?
> Anders: Hand me that roll of colour quick, will you –
> Lovell: Oh man, that's great!
> Anders: Hurry. Quick…
> Lovell: Take several of them! Here, give it to me…

> Borman: Calm down, Lovell.[2]

The crew of Apollo had seen the Earth rise. The commander, Frank Borman, later recalled the moment.

> I happened to glance out of one of the still-clear windows just at the moment the earth appeared over the lunar horizon. It was the most beautiful, heart-catching sight of my life, one that sent a torrent of nostalgia, of sheer home-sickness, surging through me. It was the only thing in space that had any color to it. Everything else was either black or white, but not the earth.[3]

'Raging nationalistic interests, famines, wars, pestilences don't show from that distance,' he commented afterwards. We are one hunk of ground, water, air, clouds, floating around in space. From out there it really is "one world."' 'Up there, it's a black-and-white world,' explained James Lovell. 'There's no colour. In the whole universe, wherever we looked, the only bit of colour was back on Earth. . . . It was the most beautiful thing there was to see in all the heavens. People down here don't realize what they have.'[4] Bill Anders recalled how the moment of Earthrise 'caught us hardened test pilots'.

> We'd spent all our time on Earth training about how to study the moon, how to go to the moon; it was very lunar orientated. And yet when I looked up and saw the Earth coming up on this very stark, beat up lunar horizon, an Earth that was the only color that we could see, a very fragile looking Earth, a very delicate looking Earth, I was immediately almost overcome by the thought that here we came all this way to the moon, and yet the most significant thing we're seeing is our own home planet, the Earth.

Twenty years later, Anders told a reporter that although he now thought only occasionally about those events, 'it was that Earth that really stuck in my mind when I think of Apollo 8. It was a surprise; we didn't think about that.'[5]

Like the crew of Apollo 8, NASA was so preoccupied with the Moon that it too forgot about the Earth. Photographs of Earth didn't appear at all on the official mission plans; they belonged in a miscellaneous category labelled 'targets of opportunity' and given the lowest priority. As for the television camera that would provide the first live pictures of the Earth, the coverage was amateurish and ill-prepared: there was trouble with the telephoto lenses, the camera was hard to aim,

and the capsule windows were fogged. There had been no official planning about what the astronauts would say when they made the first broadcasts to their home planet from the Moon. To general astonishment they did not talk (as senior NASA controllers had anticipated) about 'one world' and 'peace on Earth' at Christmas; they read the opening verses of the Bible, the creation story from the Book of Genesis. This was the one part of the publicity that had been prepared in advance, but it had been done by the astronauts themselves.

This general lack of preparedness had one important effect on all concerned: the sight of Earth came with the force of a revelation, a sense which deepened as the excitement of Apollo faded. Looking back, Richard Gordon of Apollo 12 said: 'We've often been asked, "What did we discover when we went to the Moon?" We discovered the Earth. . . . it's the only thing out there that looks like that's the place you ought to be. . . . The sheer beauty of this planet is awesome.' The writer Norman Cousins told the 1975 congressional hearings on the future of the space programme: 'what was most significant about the lunar voyage was not that men set foot on the Moon, but that they set eye on the Earth'.[6]

This was not what had been supposed to happen. The cutting edge of the future was to be in space; Earth was the launchpad, not the target. Generations of techno-prophets had quoted the Russian space visionary Konstantin Tsiolkovsky (1869-1923): 'the Earth is man's cradle, but one cannot live in the cradle forever.'[7] Thinking about space in the 1950s and 1960s was dominated by a core of progressive ideas that were so taken for granted that they have only recently been given a name: astrofuturism. The astrofuturist ideal was that humanity would be revitalised by discovering its true destiny in space. It could be found spread across the political spectrum from left to right (with perhaps a slight tendency to sag in the middle), and it was propagated through both speculative science writing and science fiction. Some prominent figures achieved equal fame in both fields: Arthur C. Clarke, Isaac Asimov and Fred Hoyle. Generations of rocket pioneers and space scientists were inspired in their youth by science fiction, and some went on to write it, including the Nazi rocketeer Wernher von Braun and the astronomer Carl Sagan.[8]

Wernher Von Braun, salvaged from Germany with his V-2s in 1945 to form the basis for the American space programme, proved an adept publicist for space travel. Whilst shrewdly alarming the generals with the line that control of space meant control of the world, he worked happily with influential media organisations such as Collier's Magazine and the Disney organization, on a series of articles, books, TV documentaries, and even a theme park, all designed to make space seem real. 'Read it today, live it tomorrow!' ran the slogan of once science fiction

magazine. Clumsily authentic science fiction films such as Destination Moon and The Conquest of Space, coupled with a surge of both science fiction and popular science writing, reinforced the message that space travel was inevitable, tapping into a bedrock post-war belief in the prospect of limitless human advancement through technology.[9] 'Man has already poked his nose into space and he is not likely to pull it back. . . . There can be no thought of finishing,' von Braun had said. 'We have set sail upon . . . the cosmic sea of the universe. There can be no turning back,' agreed a later head of NASA.[10] Space travel, like progress itself, only had one direction: forwards.

This was not traditional political lobbying but a long-range project of cultural engineering designed to convince the public that mankind's future lay in space, and that that future was already arriving. Only then would taxpayers and Congress be likely to come up with the federal funding needed for a full-blown space programme. In 1949, only 15% of Americans expected a Moon landing within fifty years. By 1960, a year before President Kennedy's famous pledge to go to the Moon within the decade, over half of the American public already expected a Moon landing within ten years.[11] Space travel had become real even before it had happened.

Astrofuturism was given a specifically American spin by the 'frontier myth'– the idea that the core values and achievements of American society had been forged by the constant challenge of westward expansion.[12] The drive to find lebensraum – living space – in the east had been the oppressive German version of the same ideal. But as the second world war had demonstrated, the world was now full. Where could the restless spirits of Europe and America now find room to exercise? With the assistance of Wernher von Braun the answer became obvious: lebensraum in space.

In 1946 Arthur C. Clarke wrote: 'interplanetary travel is now the only form of "conquest and empire" compatible with civilization.' Later, as the manned space age got underway, he explained that 'the opening of the space frontier' would cure the 'malaise . . . [that] has gripped the western world . . . by providing an outlet for dangerously stifled energies.' President Ronald Reagan later put it like this: 'space, like freedom, is a limitless, never-ending frontier on which our citizens can prove that they are indeed Americans.'[13] It was no coincidence that one of the biggest hit films of the early space age was the 1962 epic How the West was Won, told in triple-screen cinerama.

How the West was Won in turn supplied part of the inspiration for another wide-screen epic, Arthur Clarke and Stanley Kubrick's 2001: a Space Odyssey. This, the ultimate manifesto of techno-futurism, appeared in the spring of 1968, just before Apollo got underway. Its realism was achieved through close contact with the actual space programme, which in many ways it anticipated right down to the taciturn

astronauts and the beautiful and dramatic view of Earth at the end. Set in the tangible future, its theme was humankind's first contact with extra-terrestrial intelligence, and its message was that space travel marked a decisive step in human evolution.[14] The phrase 'technological evolution' was beginning to be heard in these years, as if evolution were a cultural phenomenon, an act of will; it lent a useful air of inevitability to developments that as yet were only hoped for.

As Apollo 8 headed of the Moon, the mood was already historic. 'It is as thrilling as if we were riding ourselves in the crow's nest on the foremast of the Santa Maria,' wrote an excited curator at Boston Museum of Science.[15] For the British astronomer royal, Sir Bernard Lovell, normally sceptical about the benefits of manned space flight, it was 'one of the historic moments in the development of the human race.' For a week the press, radio and TV throughout Europe and the middle east carried special stories and bulletins. Afterwards, American newspaper editors voted Apollo 8 the news story of the year, ahead of all the riots, wars and assassinations.[16] Having spent two decades making space seem real to the American public, astrofuturists now revelled in that reality; it was a euphoric moment. The author of 2001, Arthur C. Clarke, wrote: 'the world that existed before Christmas 1968 has passed away as irrevocably as the Earth-centred universe of the Middle Ages. The second Copernican revolution is upon us, and with it, perhaps, the second Renaissance . . . Many of the children born on the day that Apollo 8 splashed down may live to become citizens of the United Planets.'[17]

A few hours after that splashdown, NASA's chief Thomas Paine compared the voyage of Apollo 8 to that of Columbus and set out a long-range programme of space stations and planetary exploration. 'We are here this morning at the onset of a program of space flight that will extend through many generations,' he proclaimed. 'Man has started his drive out into the universe. It is the beginning of a movement that will never stop. One hundred thousand miles out from Earth there is no room for a space race, no place for Russian-American competition. This is something for all mankind.'[18]

The American press celebrated Apollo 8 in similar terms. 'The boundless frontier has been opened. Man's horizon now reaches to infinity,' proclaimed the Washington Evening Star 'It boggles the mind,' said the Los Angeles Times. 'Man, after thousands of years of life on this planet, has broken the chains that bind him to Earth.' Time magazine pondered: 'man is propelled from Earth to Moon by the same instincts that led him from cave to college: the lonely search for knowledge, the fascination for attacking the impregnable, the creative impulse.' The semi-official Soviet congratulation declared that the voyage of Apollo 8 'goes beyond the limits of

a national achievement and marks a stage in the development of the universal culture of Earthmen.' Addressing both houses of Congress the following month, Borman and his colleagues spoke once again of the 'overwhelming emotion' of seeing the Earth from space but their final message was that 'exploration really is the essence of the human spirit, and to pause, to falter, to turn our back on the quest for knowledge, is to perish.' Their mission, they said, had been 'a triumph of all mankind'.[19]

Behind the scenes, however, the rhetoric was already beginning to turn stale. Two months before Apollo 8, Paine drafted a speech for his colleague Willis Shapley to be deliver to the Office of Naval Research. He filled in with shorthand: 'OK – then blah blah blah about the challenge of space . . . end on upbeat note . . . And so today the spacefaring nations are acquiring a new cosmic view, a new and better understanding of man's position in the universe, as the challenge of space inspires us to blah blah blah.' For those in the stream of it, astrofuturist rhetoric was becoming a kind of Orwellian 'quackspeak', a prefabricated phrase-making that rolled off the tongue without the need for thought. The comparison with Columbus did not quite work either. Columbus had set out to rediscover an old continent, Asia, and had ended up discovering a new one, America. Apollo 8 set out to discover a new world, the Moon, and ended up rediscovering its home. The astronauts, remarked the Houston Chronicle, belonged to 'a geographical unit we will be hearing about more in the future – Earth.'[20]

Some familiar Earthbound criticisms of the space programme were heard again: there were 'still as many worlds to conquer at home as there are in space;' 'man can leap over the Moon . . . but he can't find a way to live at peace with his neighbours;' 'why cannot the same kind of mobilization of resources be utilised to meet the nation's real problems here on Earth?' 'Everything Earth-bound that cannot be done, everything Earth-bound that has not been understood, is made to seem a far greater failure when it is the failure of people who can touch the Moon,' thought a columnist in the Philadelphia Evening Bulletin. 'A cartoon in the St Louis Globe-Democrat showed humanity pulling at the coat-tails of a Moon-struck scientist, asking, 'could I interest you in some Earthly problems?'[21]

On the whole, however, the view of the distant Earth inspired optimism. The Christian Science Monitor, pleased by the fulfilment of Mary Baker Eddy's prophecy that one day men would view the universe from beyond the Earth, put it like this: 'no man, no nation, no race can fail to think more broadly as a result of men's having circled the Moon. With such an achievement in their eyes, fewer persons will be tempted to believe that Earth's problems, however stark, are beyond settlement . . .

the space programme's greatest and healthiest impact is almost certain to be on events back here on Earth.' Everywhere, however, newspaper editors wrote about the brotherhood of man and the spiritual unity of mankind.[22]

The weekly magazines had the advantage of being able to print the newly-released photographs of Earth. Time advertised its end-of-year number with a photograph of Earthrise and the single word, 'dawn'. Life, in a new year issue read (it was claimed) by one in four Americans, presented a sumptuous photo-essay on the mission, with the Earth filling a cover bearing the headline: 'The Incredible Year '68'. Inside was a poster-sized double-page spread of the Earthrise photo, and lines from the poet James Dickey: 'Behold/The blue planet steeped in its dream/Of reality'.[23]

One commentary stood out above all others: the poet Archibald MacLeish's 'Riders on the Earth'. 'For the first time in all of time,' he wrote, '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.' This view, he prophesied, would remake mankind's image of itself. 'To see the earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold—brothers who know that they are truly brothers.'[24] MacLeish's words featured in the New York Times on Christmas day, as the TV pictures of Earth and the Genesis broadcast still resonated in the mind. They were widely quoted again a few days later when the Earthrise photo appeared, and were extensively syndicated across the American and British press. It was the single most widely admired evocation of the spirit of Apollo 8.

A newer strand of thought rose with the Earth: reverence for the environment. 'No man ever before has looked at the world in one piece and told us about it,' said the Sunday Denver Post. 'Perhaps with the new understanding will come reverence for our planetary home and for the uniqueness of life.' 'We should cherish our home planet,' advised the Christian Science Monitor. 'Men must conserve the Earth's resources. They must protect their planetary environment from spreading pollution. They have no other sanctuary in the solar system. This, perhaps, is the most pertinent message for all of us that the astronauts bring back from the Moon.'[25] Looking back, it is possible to see that Earthrise marked the tipping point, the moment when our sense of the space age flipped from what it meant for space to what it meant for the Earth.

A few far-sighted thinkers noticed this rising Earth-awareness quite early on. C. P. Snow suggested that Apollo, 'as well as being the greatest exploration . . . was very near the final one,' and prophesied that civilization would be 'driven inward' by it.

‘How drab and grey, unappealing and insignificant, this planet would be without the radiance of life,’ wrote the microbiologist Rene Dubos. ‘I think the greatest contribution of Apollo has been to convert all those abstract ideas, like Spaceship Earth and global ecology, into an awareness that there is something unique about Earth and therefore something unique about man.’ The biophysicist John Platt wrote: ‘the great picture of earth taken from the moon is one of the most powerful images in the minds of men today and may be worth the cost of the whole Apollo project. It is changing our relationship to the Earth and to each other. I see that as a great landmark in exploration—to get away from the earth to see it whole.’[26]

Fifteen months later, the US was celebrating the first Earth Day. Just beforehand, a correspondent to the magazine Science, John Caffrey, wrote: ‘I date my own reawakening of interest in man’s environment to the Apollo 8 mission and to the first clear photographs of Earth from that mission . . . I suspect that the greatest lasting benefit of the Apollo missions may be, if my hunch is correct, this sudden rush of inspiration to try to save this fragile environment – the whole one – if we still can.’ Almost exactly four years after Apollo 8, the last of the Apollo missions brought back a still more famous photograph, the ‘Blue Marble’ shot of the full Earth. It was, wrote the ecologist Donald Worster, ‘a stunning revelation . . . Its thin film of life . . . was far thinner and far more vulnerable than anyone had ever imagined.’ Suddenly the image of the Earth was everywhere; it seemed to some to mark ‘a new phase of civilization’, the beginning of the ‘age of ecology’.[27]

Since then, the very phrase ‘blue planet’ has become bound up with the idea of caring for the Earth. It has been used as the name of a long-running children’s series on American public TV with an environmental theme, of a stunning British nature documentary series on the life of the oceans, and of a NASA programme to map every square kilometre of the Earth’s environment from space, to name but three. Yet until the mid-1960s, no-one really knew what colour the Earth would be. Imaginative pictures of the Earth from space, such as Chesley Bonestell’s 1952 space station, show something rather like the traditional blue and green geographical globe, the land (usually north America) prominent and clearly defined, the oceans greenish, and the clouds optimistically few. When the whole Earth was finally photographed clearly there was surprise at the dominance of dazzling blue ocean, the jacket of cloud, and the relative invisibility of the land and of human settlement. The sight of Earth seemed humbling, a rebuke to the vanity of humankind – just as the ancient philosophers had foreseen.

The idea that environmental awareness has in some way been bound up with the sight of the Earth from space has been often proposed but rarely investigated;

few people, and still fewer historians, are interested in both the environment and the space programme. Yet as Andrew Smith has observed, 'there seem to have been two sharply delineated space programmes running parallel within the programme – an official one about engineering and flying and beating the Soviets, and an unofficial, almost clandestine other about people and their place in the universe; about consciousness, God, mind, life.'[28] It is this unofficial space programme that interests us now. Two remarkable films have brought home to a later generation the sheer magic of the first space age: Al Weinert's For all Mankind (1994), and David Sington's In the Shadow of the Moon (2007). Both focus on the experiences of the astronauts and both linger on the view of Earth from space.

That view was presented afresh to public attention in Michael Light's exhibition Full Moon. Put together for the thirtieth anniversary of the Moon landings, it displayed magnificently restored copies of some of the Apollo photographs, including room-sized panoramas of the lunar landscape. What prompted most comment among reviewers was that even in colour, the Moon was still black and white. One photograph was not enlarged. In a doorway between two parts of the exhibition was a small blob of colour floating over a bone-dead landscape. The caption was if anything more arresting than the picture: 'Earthrise, seen for the first time by human eyes.' 'Earthrise' alone was striking enough; 'seen for the first time' introduced an historical perspective; but why add 'by human eyes?' What other eyes might have seen this view, and how long ago? The perspective expanded again, to embrace all life in the universe, and all time since the creation. The questions it raised led to this book.[29]

The first space age of 1957-73, from Sputnik to Skylab, is now very much part of the past, just like the super-decade of the 'long 1960s' that so neatly contains it. In the generation that followed, space history (with notable exceptions) tended to be an extension of that space age, practised by participants and specialist observers and restating and amplifying its goals and assumptions. Around the turn of the century, however, space history came of age as works began to appear which treated the ideals and assumptions of the first space age as part of the historical package, not necessarily rejecting them but seeing them critically and in context.[30] To gain a full perspective view of our subject we need to get outside it and view it from a distance, just as the Apollo astronauts viewed the Earth.

Earthrise is a history of the first views of Earth from space: how they came to be taken, what impact they had at the time, and what their wider significance has turned out to be. The history of space and the history of the Earth need to be put back together where they belong. I have sought to combine interests in both space

and the environment with the trade of the historian to produce a rounded account, based as far as possible on the record of what was seen, said and done at the time. The Apollo programme has been massively documented, not least through the excellent NASA Oral History Project, and I am not sure that a new round of interviews would bring us any closer to the period. I have consulted on a few important points with living people, and have inevitably relied on memoirs written later on, but the focus remains on the first space age itself.[31]

The pursuit of the first pictures of the whole Earth has involved a long and varied journey taking in some unexpected places, so a brief summary of the book may be helpful. I have chosen to open it with the voyage of Apollo 8 at Christmas 1968, which is related afresh in chapter two. It marked the apex of the space age – no subsequent manned mission has been further from Earth – and it gave us the revelation of Earthrise. The attention given to the first Moon landing of Apollo 11 a few months later has rather drowned out Apollo 8, and the story of this astonishing mission is well worth retelling. It is the story of how the mightiest shot in the cold war turned into the twentieth century's ultimate utopian moment.[32]

'A Short History of the Whole Earth' stands in 1968 but takes a long look back at how people had imagined what the Earth would look like from afar, from the science fiction writers of the twentieth century right back to the philosophers of ancient times. There are some prophetic moments; these changing (and sometimes familiar) expectations are a story in their own right. Apollo 8's view of the whole Earth seems to have had most in common with the most ancient visions of all.

If humans first saw the whole Earth in the space age, when did they first see that the Earth was round? 'From Landscape to Planet' goes back to the post-war years – and, in fact, earlier still – to search for the first photographs to show the curvature of the Earth. It turns out too that Apollo 8 was not first time that the whole Earth was photographed. 'Blue Marble' goes in search of the earliest pictures of the whole Earth, taken from fragile lunar probes, tiny communications satellites, monstrous rockets, and then of course by the men who went to the Moon. All these photographs were by-products of some different project, often the result of ingenious efforts. Yet throughout the 1960s, very few people in NASA thought that pictures of the Earth were worth serious effort or expense. That we have them at all is largely down to the behind-the-scenes efforts of one man: Richard Underwood, who trained all of NASA's astronauts in photography and whose remarkable story deserves to be better known.

In the second half of the book we turn from the view of Earth to the impact it had: on those who beheld it, on those who saw the photographs, and on our

understanding of the Earth itself. ‘An Astronaut’s View of Earth’ looks at the experiences of the people – only 21 in number – who actually left the Earth’s orbit and saw it from afar. In the 1970s curious stories began to appear of astronauts who had become evangelical Christians, joined the ‘new age’ movement, suffered mental breakdowns, gone into politics, or simply gone home to think. What comes over from their testimonies is that what produced such powerful effects was not just the experience of going to the Moon but going to the Moon and looking back at the Earth.

Having explored the space around it we return to Apollo 8 and pull back to see the mission in wider context, just as Apollo 8 itself pulled back to view the Earth. ‘From Cold War to Open Skies’ asks why it was that Apollo 8 and its view of the Earth made such a deep impact. In three areas the space programme seemed to move onto a new level in 1968: the awareness of Earth, the freedom of space, and the sense of the heavens. ‘From Spaceship Earth to Mother Earth’ focuses on the biggest cultural change of all associated with the view of the whole Earth: the rise of environmentalism. An ‘eco-renaissance’ took place during the Apollo years of 1968-72, framed almost exactly by the ‘Earthrise’ and ‘Blue Marble’ photographs four years apart. These were the years of the legendary Whole Earth Catalog, Friends of the Earth, and Earth Day, with environmentalism flowing into the anti-nuclear weapons crusade of the 1980s which also took the whole Earth as its emblem. These movements turned against the space programme, but they owed much of their early inspiration to its most important product: the image of the Earth.

Chapter 9, ‘Gaia’ looks at James Lovelock’s Gaia hypothesis, that the Earth’s living systems act together as a kind of super-organism that shapes its own planetary environment. The idea that the Earth is alive owed both its inspiration and its influence to the sight of Earth from space. This kind of holistic thinking about the Earth took root during the first space age and has been spreading gradually ever since, transforming our understanding of humankind’s place in the universe more thoroughly than did the old astrofuturism. The end of the cold war was accompanied by the rise of global warming. The years 1988-92 brought the Earth Summit, global citizenship, new and more distant views of the home planet, and NASA’s ‘Mission to Earth’ – all told, a fitting way to mark the twentieth anniversary of the Apollo programme.

This book is about that extraordinary moment in 1968 when humankind first saw the whole Earth, and about everything that flowed into and out of it. It is an alternative history of the space age, written from a viewpoint looking back at the Earth. Confidence in the progress of science and technology was never higher than

at the time of the first journeys to the Moon; afterwards came the first 'Earth Day', the crisis of confidence, and the environmentalist renaissance. At the very apex of human progress the question was asked 'where next?' and the answer came: 'home'. Earthrise was an epiphany in space.

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Chapter 1: Earthrise, seen for the first time by human eyes

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[28] Andrew Smith, Moondust: in Search of the Men who Fell to Earth (London, 2005), 283-7. Smith's book goes some way in this direction, as does Frank White, The Overview Effect (1987; 2nd edn, Reston, Virginia, 1998). Both are based on astronaut interviews. White's book explores the profound impact which the sight of the Earth from space had on the astronauts themselves, and argues that 'the overview effect and its related phenomena are the foundations for a series of new civilizations evolving on Earth and in space.' Smith's book recounts more recent interviews with those who had walked on the Moon. Neither book looks specifically at the perspective of the whole Earth. White treats orbital and distant views of the Earth together, while Smith interviews the nine surviving astronauts who had walked on the Moon but not the twelve who went there but didn't land.
[29] Michael Light, Full Moon (London, 1999 & 2002).
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[32] Jay Winter, in Dreams of Peace and Freedom: Utopian Moments in the Twentieth Century (Yale, 2006), picks 1968 as one of his six 'utopian moments', but strange to say Apollo 8 does not figure in it.

References

Chapter 1: Earthrise, seen for the first time by human eyes

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Chapter 2: Apollo 8: from the Moon to the Earth