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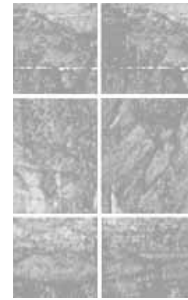
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(In)visible evidence: pictorially enhanced disbelief in the Apollo moon landings

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ABSTRACT

When pictures become journalistic, historical, and popular icons, there is a common belief that they also have a single, usable meaning, and media, political, and academic elites typically determine it. Yet, research on how people interpret images suggests that believing is seeing: pre-existing prejudices and experiences affect what meanings we draw from pictures. This is especially so when the viewer seeks out information that confirms strongly held notions, what mainstream audiences might think of in some cases as conspiracy theories. This article examines reaction to one of the most famous sets of images of the past century – photos of the 1969 Apollo moon landing – by proponents of the ‘moon hoax’ theory, those who believe that the landings were faked by NASA. Analysis of moon hoax websites shows that the pictures’ visual details are used as evidence that the mainstream interpretation is ‘visibly’ in error.

KEY WORDS

conspiracy • hoax • icons • photography • photojournalism • photostyle • phototruth • science

INTRODUCTION: THE ‘POWER’ OF THE ICON

Barthes (1993[1979]) argued that the photograph was both a public and a private experience, a general memory and a particular one. It follows that the possible narratives that a press photograph confirms or exemplifies for the viewer are linked both to the private memory of things experienced or as seen through media and to the public consensual memory of the approved interpretation or narrative of public images. Research on famous photographs such as icons suggests that there are different publics for the memory and the narrative definition of any particular image, and sometimes they are

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wildly in conflict (Perlmutter, 1997b). On the other hand, there are famous images that, while they might be taken to have different symbolic forms to different audiences, to use the Barthesian line, they have some consensual or agreed-on factual societal meaning.

In most cases of news icons we generally agree what a famous picture *shows* (the identity and actions of the objects within the frame) but not necessarily what it means, especially when our political prejudices may drive our interpretation of causality or metonymy. Perhaps this discordance is due to the secular sacredness of the photograph itself, what Barthes (1993[1979]) called the second level of evidentiality of the medium of photography because of its perceived close physical resemblance to what is being photographed (pp. 106–7). The moon landing photos of 1969, for example, have been the subject of many metaphorical leaps, for poets, politicians, scientists, historians, and others, but there is almost universal consensus that moon landing photos indeed show moon landings – that is, men (and their material possessions) on the moon.

But where is the line, and who draws it, between the consensual truth value of an image as expositor of undeniable facts and that of the myth-object? Journalism may be the ‘first draft of history’, but the transcripts of the initial reporters on the scene of a news event often are forgotten with the passage of time, while the images can become part of the eternal historical consciousness. Famous historical events – the explosion of the Hindenburg, the raising of the US flag at Iwo Jima, the shootings at Kent State, the Tet Offensive in the Vietnam War, the Tiananmen protests and crackdown in China, and the fall of Saddam Hussein’s statue – often produce photo-journalistic icons that are much commented on popularly, are shown many times, and are increasingly studied (Bailey and Lichty, 1972; Bennett et al., 1992; Dauber, 2001; Domke et al., 2002; Edwards, 2004; Edwards and Winkler, 1997; Goldberg, 1991; Hariman and Lucaites, 2004; Monk, 1989; Perlmutter, 1997a, 1997b, 1998; Perlmutter and Wagner, 2004). The ‘big picture’ is worthy of special attention because of its ascribed power; volumes of popular and some academic discourse, ranging from that of presidents to journalists, claim that famous pictures can influence the events that they show (see review in Perlmutter, 1998). Often the photo icons are described as being endowed with both consensual meaning (e.g. ‘the whole world was shocked at the image of . . .’) and linear effects (e.g. ‘this was the picture that lost the war’).

When subjected to scrutiny, however, the assumed powerful effects of particular ‘big pictures’ often either evaporate or grow more complex (e.g. Bailey and Lichty, 1972; Bennett et al., 1992; Bossen, 1985; Perlmutter and Wagner, 2004; see review in Perlmutter, 1998). As the late visual anthropologist Sol Worth put it, ‘Pictures can’t say ain’t . . . A picture cannot depict [that] “This picture is not the case,” or “This picture is not true”’ (Worth, 1981: 162–84). But words can make such claims about pictures. In this light, evidence suggests that the power of the photo icon is varied. A

picture can certainly be politically powerful, that is, affecting public opinion or policy-making, but it can also spur emotions, serve as a mnemonic device (a way of remembering an event), and possess aesthetic appeal. These powers can occur and be imposed separately, and their effects on different audiences can vary considerably. A picture of a *Shoah* (Second World War Jewish Holocaust) victim, for example, may be seen as a striking indictment of Nazi barbarism to many (but not all!) modern audiences, but we should recall that such images were often created by the perpetrators of the Holocaust as trophy photos and tourist snapshots or for bureaucratic documentation (Perlmutter, 1997b).

One way to study how photo icons play a role in the understanding of news and history is to look at how a 'meaning' for such images is produced, not just at the moment the event occurred but over time, as a historical legacy. Among the subjects of our case study here is an image that continues to be regularly reprinted in popular literature and textbooks: the 1969 photo of Buzz Aldrin on the surface of the moon (see Figure 1 in the 'Analysis: When Moons Collide' section). This photo – along with several others from humankind's first journeys to another body in space – is frequently cited as one of the most watched and wondered-over icons of the modern age, unlike some photo icons that are generationally or nationally restricted in their fame. One of the authors of this article regularly conducts a survey of incoming freshmen and asks them to identify, without captions, so-called 'famous' images. Moon landing images always receive the highest rate of accurate identification of pictures from the 1960s, even among students from countries other than the USA.

Further, the photo of the man on the moon would seem to occasion little debate or controversy. While most scientific knowledge is difficult to picture, let alone comprehend (e.g. string theory, time-space distortion, and so on), that rockets left Earth and carried men to land on the moon seems to be the most obvious instance of a scientific experiment visually verified as 'truth'. Surely these images are an example of famous photos with a universally subscribed truth value, to take a transpositional sense, that do not rise up to myth-object until *after* we all have agreed on their basic facticity.

A persistent minority of unbelievers, however, claim that the enterprise was a hoax and that men never landed on the moon, but rather NASA and other government entities, with the collusion (or duping) of the media, staged the events. Why? Most moon hoax believers claim that: (a) travel to the moon was (and maybe still is) technically impossible; and (b) the government at the time needed a huge publicity stunt as distraction for its other failings. Kevin Overstreet (1998), who devotes 'www.batesmotel.8m.com' to moon-hoax speculations, among other topics, offered the following:

People did not like what was going on with the Vietnam war, so, to get the publics [sic] mind off of all the bad things going on in Vietnam, the US faked a moon landing. If you check your dates, we abruptly

stopped going to the moon around the same time the Vietnam War ended.¹

Surveys suggest that millions of people believe all or part of this conspiracy theory. The world wide web is full of moon-hoax sites. Twenty million people watched a Fox TV 'news' special, *Conspiracy Theory: Did We Land on the Moon?*, advocating this premise: its video/dvd is a bestseller. NASA devotes two full-time employees simply to deal with 'hoax' mail and inquiries. As scientist James Oberg (2003) stated: 'Depending on the opinion polls, there's a core of Apollo moon flight disbelievers within the United States – perhaps 10 percent of the population, and up to twice as large in specific demographic groups' (p. 1; see also Bowdley, 2003).

In this article, we explore these beliefs of moon hoax protagonists, not to ridicule but to understand the visual dimension of the revolt against the scientific and popular consensus, the conviction that the icons from the Sea of Tranquility are not those of a 'moon landing' but rather a moon hoax that shows incontrovertible visual evidence that man did not land on the moon.² We ask specifically how (some) moon-hoax advocates and opponents use images as evidence for their cause and what that tells us about how human beings contest for meanings even in images whose meanings seem incontestable. We note that both sides of this controversy employ similar tools of visual analysis; for both the hoax-believers and the scientific defenders, seeing is indeed believing.

THE MOON HOAX: ORIGINS AND OUTLOOKS

As the most proximate celestial object to Earth of any magnitude, the moon has always exerted a fascination on humankind, whether as an object of whimsy or fantasy, or as an outright deity. Some of the 'effects' of the moon on us are probably spurious: science has yet to discover lunar-incited wolf men or even to confirm that the moon has any measurable influence on human behavior (Culver et al., 1988). But other influences are demonstrably real: tidal forces, for instance, visibly affect bodies of water. Even more important, a new scientific consensus suggests that Earth's life-supporting atmosphere would not have been possible without a proximate large moon to skim off excess gasses (Ward and Brownlee, 2000). The moon, for poets and scientists, has also been a symbol for terrestrial concerns and ambitions. In a famous essay, Isaac Asimov (1973) averred that it was our greatest tragedy as a species that our home world had only one moon, which is why we developed religio-philosophical beliefs that placed us at the center of a perfectly symmetrical universe.

The 'conquest' of the moon – to land a human being on its surface – was taken as a 'giant leap' for humankind long before its actual occurrence. In Arthur C. Clarke's original story, on which the movie *2001: A Space Odyssey* was based, aliens placed a detector on the moon to signal to them when Earth dwellers finally reached their home world's satellite. The metaphor is a

dominant one: to reach the moon was the imprimatur that we had 'made it' as a technological civilization. The poet W.H. Auden proclaimed in his work 'Moon Landing' that the moon was our destiny: 'From the moment the first flint was flaked . . .' – this goal was alluded to visually in the Stone Age film drama *Quest for Fire*. And, of course, the sense of a quest was set by the presidential father of the moon program, John F. Kennedy: 'We choose to go to the moon in this decade, and do the other things, not because they are easy but because they are hard' (McDonough, 1987: 26). The counterview – of the Earth seen from the moon – contributed to, as Suzannah Lessard (2001) put it, 'a sense of wholeness and connectedness . . . to heighten our consciousness of humanity as a family' (p. 10). Norman Mailer called the time of the moon landing 'the climax of the greatest week since Christ was born' (quoted in Hoberman, 1994: 10).

Yet, as is clear from events in society since the first moon landing in 1969, history did not end when the first astronaut stepped onto the lunar surface, nor has techno-logic triumphed as a channel for human inquiry and action. Indeed, researchers for years have tried to explain why, in an allegedly scientific and industrial age, people continue, as one writer said, to 'believe in weird things' (Shermer, 2002). Certainly, in the rationalist view, a scientific method operates to produce an objective outcome which is then continually subject to testing (Popper, 1979[1972]), but some events are, as scientific jargon goes, fully tested – that is, like continental drift and moon landings, their occurrence is fact and not subject to any doubt.

However, as Kuhn (1970) and others noted, scientific consensus rarely seems to operate without a human element. Scientific knowledge, for most of us, is taken as faith as much as priestly knowledge was in the Middle Ages (cf. Harter and Japp, 2001). Science, then, is a belief system and a language, one that non-scientists tend to absorb only through their own pre-scientific belief systems and languages. This fact accounts for the long lamented 'scientific illiteracy' of the public which is commonly at least partly attributed to the poor communication skills of scientists. A former head of the National Science Foundation claimed: 'With the exception of a few people . . . we don't know how to communicate with the public. We don't understand our audience well enough . . . We don't know the language and we haven't practiced it enough' (Hartz and Chappell, 1997: 38).

Even so, the facts of the moon landing are commonly known and seem self-evident. On 20 July 1969, the Apollo space program successfully landed two men, Neil Armstrong and Buzz Aldrin, on the surface of the moon. On that historical day, as Armstrong took his first step onto the lunar surface, he spoke the now famous words: 'That's one small step for [a] man, one giant leap for mankind.' Approximately 600 million people, about one-fifth of the Earth's population, watched the live broadcast transmitted from the lunar surface. During the nine-day mission, Apollo astronauts also took numerous photographs from the moon's surface, many of which have become visual icons in our collective consciousness.

Despite the visual records of the Apollo lunar landings and the scientific evidence, however, many people doubt that man ever landed on the moon (see the list in the next section). Hoax believers cite a number of reasons why humans could not possibly have landed on the moon. Among these claims is that, since Richard Nixon was president at the time, and it is well known that he was a master of cover-up, *some* conspiracy must have been at work. Also, the lethal Van Allen radiation belts lie between the Earth and the moon, and every manned space mission in history except for the Apollo missions (including Mercury, Gemini, Soyuz, Skylab, and the Space Shuttle) have flown past this deadly radiation field. Another popular claim that hoax believers use to 'prove' that the lunar landings were staged involves the actions of the Apollo 11 astronauts. They cite the fact that Neil Armstrong refuses to give interviews to anyone on the subject and quote him as saying, 'Ask me no questions, and I'll tell you no lies.' Hoax proponents have also alleged that Buzz Aldrin agreed to an interview but threatened to sue if the interview was shown to anyone.

While these claims may seem to be logical to some, how does one discount the actual photographs documenting the 1969 Apollo lunar landings? As humans, we have been trained to believe in something for which we have visual evidence (Newton, 2000). In the 21st century, in the age of digital photography and image manipulation, this long-held assumption of knowledge might be slipping away: simply put, anyone with minimal digital editing skills can realistically (if not plausibly) 'place' their grandmother, Daffy Duck, or Prince Charles on the moon. The 1960s, however, predate digital image manipulation and were still a period of general belief in visual evidence, although photo-doctoring techniques existed then as well and were not infrequently practiced by governments (Brugioni, 1999; Jaubert, 1989[1986]).

Paradoxically, hoax believers point to characteristics or flaws in the NASA-released photographs as proof that the landing was staged. For example, hoax believers claim that, as many of the shadows seen in the Apollo photographs are not parallel, they are therefore caused by a second light source, which proves that the photos were not taken on the surface of the moon since the only light source on the moon was the sun. As to the well-known photograph of the 'C' rock, hoax believers claim that the rock is most likely a papier maché prop because of the crease at the bottom and the 'C' imprint, which they assert is probably a categorization for the props.

And as for what is arguably the most well-known image of the 1969 Apollo lunar landing – a full-body shot of Aldrin on the moon's surface that was taken by Armstrong with a camera that was mounted on the latter's chest pack – hoax believers insist that the photo was obviously taken from a higher camera angle than that from which Armstrong was positioned, as the viewer is looking down on Aldrin and can see the top of his helmet and backpack. Therefore, since Aldrin and Armstrong were supposedly the only two people on the surface of the moon, who took the photograph?

This article examines the contrasting interpretations (moon-hoax believers versus NASA advocates) of photos of the 1969 Apollo moon landing. The goal is not to deride – although the authors fully accept the standard NASA narrative of the events – but rather to understand within a framework of rhetoric and visual historical interpretation. Because the world wide web provides access to mass audiences, members of the general populace now have the ability to bypass media elites and thereby create (and extensively document) their own interpretations of reality. And since the web is a visual medium, it is ideal for photographic presentations and visual analysis.

METHOD: COMPARE AND CONTRAST

Data for this study were collected from websites, books, and videos dedicated to exploring the moon-hoax phenomenon. These include:

- <http://www.moonhoax.com/>
- <http://www.moonmovie.com/moonmovie/default.asp>
- *We Never Went to the Moon: America's Thirty Billion Dollar Swindle* – Bill Kaysing and Randy Reid (Health Research, 1976).
- *How America Faked the Moon Landings* (video). Charles T. Hawkins (2004).
- *NASA Mooned America* – Ralph Rene (1994).
- Moon Hoax evidence – Kevin Overstreet of the website www.batesmotel.8m.com
- The faked Apollo landings – Cosnett of the website www.ufos-aliens.co.uk
- *A Funny Thing Happened on the Way to the Moon* (video). USA (B.W. Sibrel, producer/director, 2001).

Although these media provide information on all aspects of the moon-hoax phenomenon, for this study, the research was concerned only with the visual interpretations (the captions) of Apollo lunar landing photographs. Relevant websites were located by conducting a search for 'moon hoax' through Google. Researchers determined which Apollo photographs occurred most often throughout these sites. Of importance: *we found almost complete unanimity among hoax believers in what was the visual or photo-evidence for their theory*, although they sometimes disagreed on other issues, like who was behind the hoaxing conspiracy. In turn, the scientific counter-arguments are also largely uniform – that is, from NASA and from websites of many astronomers and physicists, the arguments for the moon landings being fact are similar and also use the photo-evidence as support.

Astronomer Phillip Plait's (University of Sonoma) book and website ('Bad Astronomy') were most helpful in summing up the 'scientific' case with a special focus on the photos. We also consulted:

- Jim Scotti (University of Arizona):
http://pirlwww.lpl.arizona.edu/%7Ejscotti/NOT_faked/FOX.html
- *Apollo Lunar Surface Journal*:
<http://www.hq.nasa.gov/alsj/frame.html>
- NASA moon rock overview:
<http://spacelink.nasa.gov/Instructional.Materials/Curriculum.Support/Space.Science/Our.Solar.System/Earth's.Moon/Moon.Rocks/>
- NASA position on moon hoax:
http://science.nasa.gov/headlines/y2001/ast23feb_2
- NASA educational material on 'Moon Hoax':
<http://www.thursdaysclassroom.com/>
- NASA Chief Historian on history of moon landing:
<http://www.hq.nasa.gov/office/pao/History/Apollo11/contents.html>
- Jim McDade (University of Alabama):
<http://www.business.uab.edu/cache/debunking.htm>
- Ian Williams Goddard:
<http://users.erols.com/igoddard/moon01.htm>
- Smithsonian's National Air and Space Museum's Web site on Apollo program: <http://www.nasm.edu/apollo/>

In sum, we treated the contested narratives about the NASA images as contrasting captions by two cultural groups. Thus, our method followed the path of close visual analysis of images and their accompanying lexical-verbal discourse – that is, their captioning by text creators (Borchert, 1981, 1982; Domke et al., 2002; Kulikova and Perlmutter, 2007; Lester (2007); Major and Perlmutter, 2005; Malmsheimer, 1985, 1987; Margolis, 1988; Perlmutter, 1994a, 1994b; Perlmutter and Wagner, 2004; Peters and Mergen, 1977; Rundell, 1978).

Treating the images in this fashion, we asked:

- What binary opposition did the competing narrative givers offer?
- Which image elements did each group attend to in their ascription of meaning?
- What weight did each group put on what details within the image?
- How did each group's image narratives react to the opposing group's image narratives?

ANALYSIS: WHEN MOONS COLLIDE

Since what we are studying is a binary opposition about famous images, our analysis section will be structured in the same way, posing two arguments about a central 'icon' against each other.

It is important to note that every claim cited in this section (from moon-hoax believers and from scientific debunkers) is made by multiple authors; to include citation information for each would make the following unreadable. We present the arguments and counter-arguments in narrative consensual form. Our analysis thus differs from the familiar formats of content analysis. What we aim to do in a discussion format is to juxtapose, within the following narrative, the competing claims about imagery and specific famous images that are offered by scientists (who believe that a moon landing actually took place and was documented by these photographs) and moon-hoax conspiracy theorists (who believe that a moon landing did not take place but also believe that the photographs attest to this contrary fact).

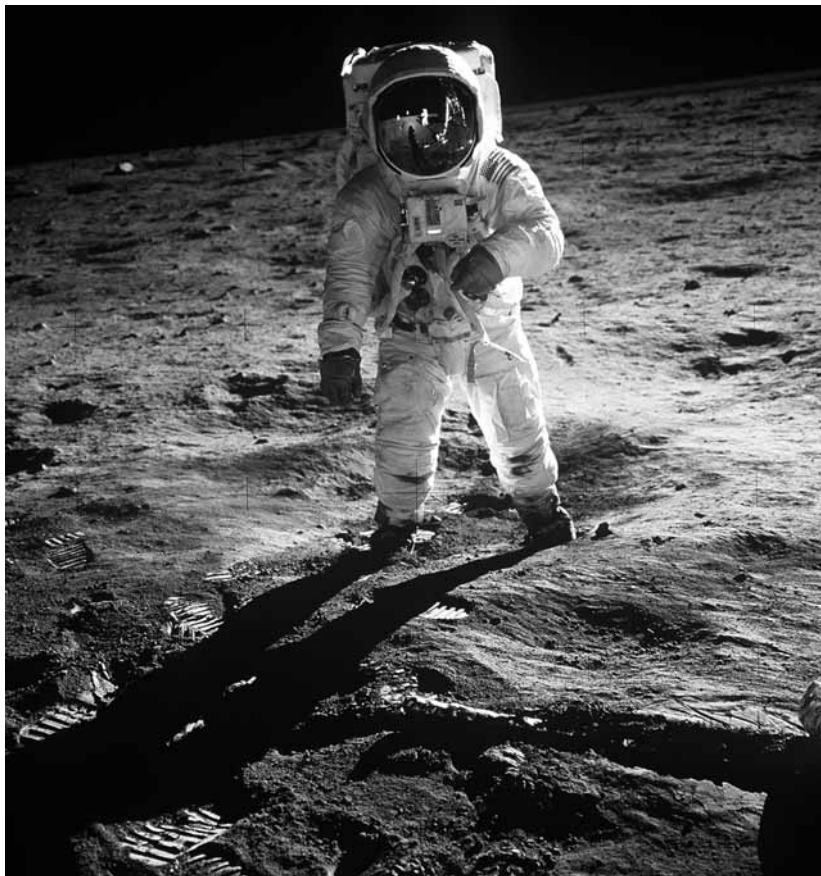


Figure 1 Astronaut Buzz Aldrin walks on the surface of the moon near the lunar module during the Apollo 11 mission. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

Height of photo-angle

Arguably the best-known of all the lunar landing photos is that of Buzz Aldrin in his space suit on the surface of the moon (Figure 1). In the mainstream narrative, Neil Armstrong took this photograph of Aldrin with a camera that was mounted on Armstrong's chest pack. As previously stated, however, hoax believers point out that the photo was obviously taken from a higher camera angle as the viewer is looking down on Aldrin and can see the top of his helmet and backpack. Additionally, based on the reflection of Armstrong in Aldrin's visor, hoax believers claim that Armstrong is not standing on a rock to give him extra height, nor is he holding the camera at eye level. Hoax believers, therefore, claim that the reflection in the visor is not that of the primary photographer. Since Aldrin and Armstrong were the only two people on the surface of the moon, hoax believers ask, Who then took the photograph?

Those that debunk the moon-hoax theory argue that the answer to this question is quite straightforward: the ground that the two astronauts are standing on is not flat. Armstrong was further up an incline; therefore, he was higher than Aldrin. The visual evidence for this can be seen in the horizon behind each man. The horizon behind Aldrin is at his eye level but, by examining the visor reflection, one can see that the horizon behind Armstrong, the photographer, is at his chest level, thereby indicating that Armstrong is on higher ground. Additionally, the weight of the packs caused the astronauts to lean forward slightly, thus allowing the viewer to see the top of Aldrin's helmet and backpack.

Where are the stars?

One of the primary questions the hoax believers ask is, Why are no stars visible in any photos taken from the surface of the moon? As seen in Figure 1, there are indeed no stars in the photograph. The contention is that on the moon, with no atmosphere, the black sky must have been full of stars. Some hoax believers claim that creating an accurate mural with all the constellations properly placed in the sky would have been virtually impossible. According to hoax believers, any competent amateur astronomer would have been able to call attention to the slightest error in measurement on such an artifice; NASA's solution then was not to have included stars in the 'staged' photos. Therefore, since no stars can be seen in any of the photos taken from the surface of the moon, humans never really landed on the moon.

Those that debunk the moon hoax theory argue that the reason the stars cannot be seen in the photographs is because they are too faint. There is really no difference between the sky on the moon and the sky on Earth during the day. The fact that the Earth's sky is blue because of the atmosphere and that the moon's sky is black because of the lack of an atmosphere makes no difference – stars are not visible during the day. Scientists also argue that the stars are not visible because of camera settings. Fast exposure settings

were required to capture the brightly lit objects on the surface of the moon. The fast exposures did not allow enough time for the dim starlight to enter the camera to record an image on the film. For the same reason, images of the Earth taken from orbit also lack stars. Hoax believers are failing to recognize the difference between seeing stars and photographing stars. The stars are there; they just do not appear in the pictures.



Figure 2 Astronaut Neil Armstrong captures his shadow near the landing site of the lunar module during the Apollo 11 mission. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

The shadows

Hoax believers claim that many shadows seen in the Apollo photographs are caused by a second light source, which proves that the photos were not taken on the surface of the moon since the only light source on the moon was the sun. Hoax believers argue that when objects are lit solely by the sun, all the shadows will be parallel with each other and never intersect, regardless of the landscape. In Figure 2, they claim, an artificial light source was used since the shadows are cast at different angles.

The primary scientific counter-claim to the shadow argument centers on the notion that photographs are only two-dimensional representations of

a three-dimensional surface and, therefore, cannot fully represent three-dimensional features. In other words, parallel lines may not appear that way on film. In another example, consider how parallel lines on a highway appear to converge in the distance. Additionally, one must recognize that landscape is a factor. Although the angle of the sun on two objects may be the same, the angle of the ground changes, thereby causing differences in shadow length and direction.

The lighting

Hoax believers further question the Apollo photographs in regard to lighting. Again, they ask if the sun was the only light source, how is it possible that there are photos of objects cast in shadow which appear to be brightly lit? The series of photos of Aldrin descending the ladder of the lunar module are said to be a prime example. Hoax believers claim that an artificial light source was used on these photographs. Since Aldrin is in the shadow of the lander, hoax believers claim he should appear in blackness.

The sun is indeed the only source of *direct* light; however, the counter argument is that it is not the *only* light source. One must consider that the sunlight is reflected off everything, and because this is very bright light the reflected light can be quite significant. In Figure 3, the astronaut is standing on the ground and is lit by reflected light off the surrounding lunar landscape. Additionally, those who debunk the moon-hoax theory point out that the astronaut is wearing a white spacesuit that is also reflecting light. Therefore, he appears quite bright against the shadow on the ground below him.

Composite images

Hoax believers claim there are several photographs in which crosshairs prove that the images are composites. Examples of crosshairs can be seen in Figure 2. In some of the Apollo photographs, hoax believers claim that some of the crosshairs – which would have been burned directly into the image from the film plate and thus should always appear on top of the objects in the photograph – actually appear behind objects, clearly revealing a composite of two photos.

The counter argument states that a glass plate within the camera, between the lens and film, produced the crosshair. These plates cause a black crosshair on the film where they block the light from reaching the film directly below them. If the photo has an area of a really bright, white object, however, the white, over-exposed part of the film 'bleeds' into other parts of the film – particularly when an adjacent part of the film is black. Although the crosshairs in a number of Apollo photographs appear to be behind objects, they occur only in bright, white parts of the photographs. This phenomenon is commonplace and happens on Earth also; therefore, it is in no way indicative of fraud.

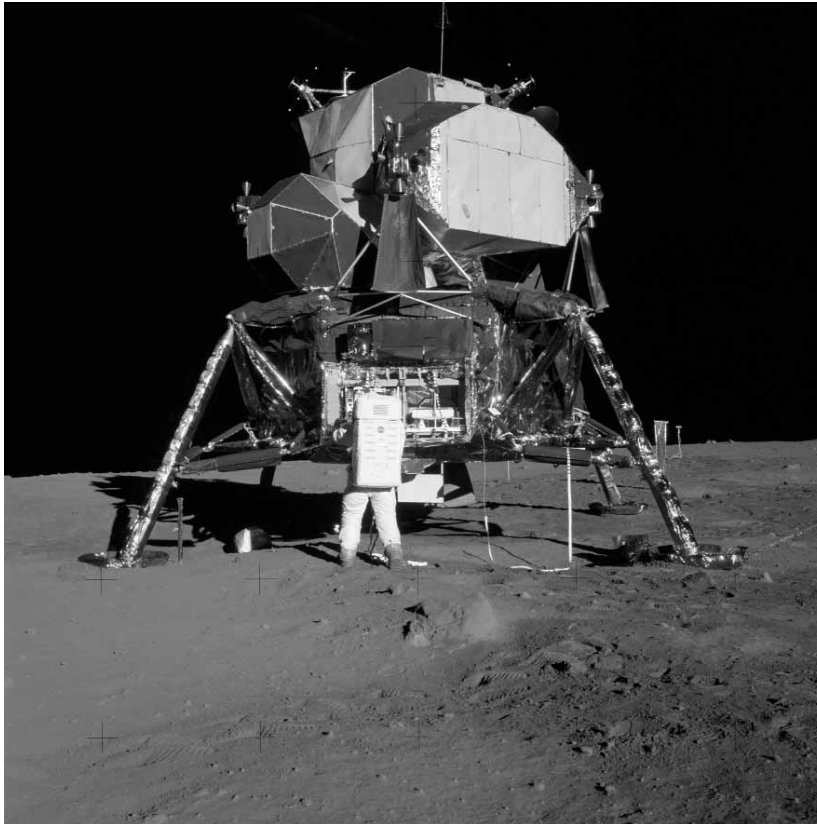


Figure 3 Astronaut Buzz Aldrin unpacks an experiment from the Lunar Module during the Apollo 11 mission. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

Blast craters

Hoax believers claim that the powerful 10,000-plus pound engine of the lunar module should have produced a blast crater, yet there is no evidence of a blast crater in any of the Apollo photographs, as illustrated in Figure 3.

Although the descent rocket used by the lander had a maximum thrust of 10,000-plus pounds, those who debunk the moon-hoax theory argue that the lander's rocket was not at full thrust when it landed. In addition, they state that while the lander was still several feet above the ground, probes extending below the footpads sensed contact with the surface, thus allowing Armstrong to completely shut down the descent engine as the lander made contact. The engine was shut down to prevent the rocket's thrust from rebounding off the surface and damaging the lander. Additionally, the lander did not descend vertically as NASA did not have a precise landing point in mind; therefore, the astronauts selected the actual landing site as the lander descended at an angle, traveling across the moon's landscape and skidding to a stop. As such, the lander did not hover directly above its landing point for any significant length of time. Considering these

factors, those who debunk the moon-hoax theory make the case that the pressure from the descent rocket was not strong enough or sufficiently centralized to produce a blast crater.

Missing dust

Given that there was a large amount of dust on the surface of the moon, hoax believers ask why there is no dust on the foot-pad of the lunar module (as seen in Figure 3). Hoax believers accordingly claim that the lunar module never actually landed.

In line with the previous discussion of the touchdown of the lunar module, those who debunk the moon-hoax theory argue that the moon dust was blown away during the lunar landing. Additionally, as there is no atmosphere on the moon, there is no air disturbance to allow for dust to blow around and settle on top of the foot-pads of the lunar lander. Once the dust was blown to the side by the lunar landing, there was no air current to blow it back again; dust on the moon does not behave like dust on the Earth.

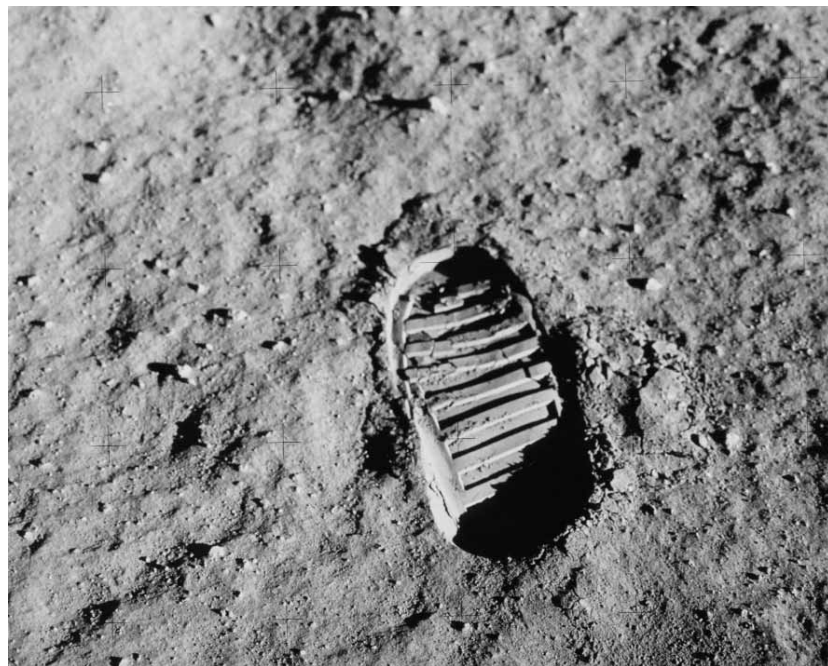


Figure 4 Astronaut Buzz Aldrin's footprint on the surface of the moon during the Apollo 11 mission. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

Footprint

Hoax believers further ask: if the dust near the lander was blown away as the lander descended, how is it that the astronauts made bootprints in the dust so near the lunar landing site, as evidenced by the famous photo of the footprint in the dust on the surface of the moon, as seen in Figure 4?

Again, the counter argument relates to the notion that as there is no atmosphere on the moon, the only dust particles that would be displaced would be those *directly* impacted by the exhaust. And, as mentioned previously, the engine thrust was quite low and then turned off as the lander descended. Those who debunk the moon-hoax theory argue that only the area directly under the landing site was disturbed; the area adjacent to the lunar module would be essentially undisturbed. Additionally, the dust around the landing site was probably a bit thicker than before, since the dust blown away from the lander would have accumulated, thereby allowing bootprints to be made.



Figure 5 The surface of the moon taken during the Apollo 16 mission. In subsequent releases of the photo with the 'C' imprint on the rock, hoax believers claim that the 'C' rock is a stage prop. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

The marked rock

In Figure 5, hoax believers claim that the famous photo of the moon rock (with later versions having a 'C' imprint), is most likely a papier maché prop because of the crease at the bottom and that the 'C' imprint is most likely a categorization for the props. Additionally, hoax believers state that in later releases of the same photograph, the 'C' is gone, indicating that it was airbrushed out.

The counter argument does acknowledge that there are versions of the photograph both with and without the 'C'. However, the original negatives do not have the 'C' on the rock, as seen in Figure 5, and it must be acknowledged that the photo of the rock with the 'C' is most likely a reproduction in which a tiny hair or fiber contaminated the reprint.



Figure 6 Astronaut Buzz Aldrin stands next to a US flag planted on the surface of the moon during the Apollo 11 mission. *Source:* National Aeronautics and Space Administration (NASA). Reproduced with permission.

Wind and the flag?

Hoax believers ask: if there is no atmosphere and no wind on the moon, why does the flag appear to be waving, as seen in Figure 6? Some hoax believers claim these photos provide proof that the photos were staged inside and that the waving of the flag was caused by air conditioning.

NASA states that when the astronauts were planting the flagpole, they rotated it back and forth to penetrate the hard lunar surface; therefore, the flag 'waved' to the back and forth motion of the pole. While this accounts for the photos where the astronauts are planting the flag, hoax believers question why the flag appears to be waving when no astronauts are touching the flag, as seen in Figure 6. Those who debunk the moon-hoax theory argue that as

NASA knew there was no wind on the moon to make the flag stay horizontal, the flag had a horizontal bar attached to it at the top so that the flag would stand out from the flagpole. The bar was also not quite the full width of the flag, so that the flag would be forced to 'gather' slightly to give it a wave-like appearance. Additionally, the flagpole was made from a lightweight, pliable aluminum. Even after the astronaut let go, the pole would continue to vibrate, which, in turn, would shake the bar and cause the flag to 'wave'. In addition, without any atmosphere to dampen the effect, it would continue to 'wave' longer than otherwise.

CONCLUSIONS: BELIEVING IS SEEING

The purpose of this research was to examine the captioning of the Apollo lunar landing photographs by those who use the visual aspects of the photos as the very evidence that proves that man did not really land on the moon. These allegations were then compared to the counter arguments that the same pictures prove that the moon landings were real, not a hoax. Such a semantic and visual opposition is of interest in part because one of the great divides between most students of visual communication and mainstream critics or appreciators of photography discourse is the widespread conception that pictures can 'speak for themselves'. Those of us who spend a great deal of time studying the creation and evolution of pictures, including celebrated photo icons, are more likely to come to the conclusion that no picture stands alone, separate from biology, time, space, culture, society, politics, history, even economics, because the meaning of an image is not within the frame but within the mind of the presenters of the image and the attending audience. As the great historian of art E.H. Gombrich (1989[1960]) put it, there is no 'innocent eye', and we may add that there is no innocent caption. It is not a common circumstance for us to encounter any image without its being framed by a whole series of lexical-verbal captions, prompts, allusions, prejudices, and connections to other images and assumptions about the nature of imagery.

We have presented here a case of how images that seemingly speak for themselves – that is, are naturally realistic in showing an informational event – can in fact be debated to a high degree of complexity, if not accuracy. We are not claiming that the moon-hoax conspiracy theorists are correct, either in an objective sense or through some sort of relativistic argument about truth. We are suggesting that believing is seeing, rather than the reverse. The weight of studies on photo icons reveals that people's pre-existing opinions, attitudes, prejudices about politics, aesthetics, and a range of other determinants have a tremendous influence on what pictures they select for viewing, which pictures they find important enough to consider in depth, what meanings to draw from the images, and what mental or physical actions in which they may decide to engage in response to the images (see review in Perlmutter, 1998).

Indeed, that the image retains some sort of indelible impression, some lasting effect, on the viewer, may in fact be a predetermined phenomenon. Space, we must recall – whether it is space of some contested territory on Earth, the moon of scientific exploration, or the outer space of science fiction – ‘is constantly in flux and carries multiple meanings. It is not a given, a neutral stage upon which history is played out. It is part of history and culture, constantly being defined and redefined’ (Khatib, 2004: 69). The significance of a public space or a publicized picture is not unlike that of some monument such as the Empire State Building or the Eiffel Tower that comprises ‘individual and collective meaning’ (Johnson, 2002: 293). In a democratic society, collective meaning should be arrived at by collective debate, but individual opinion should also be respected.

An important observation is that the debate about the moon landing pictures is not about the truth value of the images themselves. As Gombrich (1989[1960]) pointed out, it is a false dichotomy to impose positions of accuracy or falseness on images without asking the necessary preliminary question about what is claimed by the provenance of the pictures or their surrounding lexical-verbal discourse about what the pictures are supposed to be. For example, we enter a movie theater to watch a science fiction film; the opening credits tell us that we are about to watch a story set in ‘a time long ago, in a galaxy far away’. We then proceed to watch space battles, and humans – many familiar actors with upper-class English accents – robots, and strange creatures engage in an adventure that is a pastiche of Gilgamesh, Buck Rogers, Wagner, Frank Herbert, and Kurosawa. It would be an act of folly or madness to protest that such images were lies. Likewise, a digitally manipulated image is not a false picture if we are told about the manipulation through its caption.

In that sense, then, the moon-hoax conspiracy theorists are engaging in an important act of empowerment. The problem of the 20th century and continuing even into the era of digital photography is not, as many popular critics worry, that the public has become too cynical about the truth of news photography, but that not enough doubts are being raised about the veridicality, verisimilitude, and symbolism of famous images. Astute criticism, however, is not to be confused with baseless gainsaying. Some of the claims of the moon hoax conspiracy theorists do not need to be vetted by scientists using calculus beyond common understanding. For example, anyone who has taken a flash picture on a starry night has noticed that the background sky in the resulting print is pitch black.

So, yes, the overwhelming weight of evidence is against those making allegations that the moon images are evidence of faking. In our respect for understanding different communities of meaning, we feel scholars should not abandon the principle that some ‘facts’ (the Holocaust, the Armenian genocide) are more likely to be true than others (the Loch Ness monster, ESP) and that extraordinary claims require extraordinary evidence. Nevertheless, a principle for the critique by visual communication researchers of

popular photography should be to encourage everyone, from on-the-scene journalists to ordinary viewers at home, to stop, think, and ask basic questions of facticity about news images, however famous they may be or however self-evident their meaning seems. While many images deservedly possess consensual agreement about what they physically portray, it is even more incumbent for students of the still and moving picture, whether in old media or new, whether in today's news or in the archives of history, not to take visual meaning for granted. Perhaps what is needed is not to encourage students, for example, to be suspicious about news pictures (i.e. 'they are all lies') but to develop some agendas or checklists for *how to ask questions* about pictures and *how to judge* the correctness of the evidence they uncover.

We understand that to visual scholars such observations are self-evident and hardly innovative, but our argument is that research on visual icons need not just establish the variability of ascriptions of meaning to images, but *by what parameters the limits of that variability are established*. We argue that the myth-value of the facts needs to be more thoroughly and better analyzed. To return to Barthes (1993[1979]), he discusses:

the special credibility of the photograph – this, as was seen, being simply its exceptional power of denotation – in order to pass off as merely denoted a message which is in reality heavily connoted; in no other treatment does connotation assume so completely the 'objective' mask of denotation. (p. 21)

Barthes gives the example of the faked image of a US congressman conversing amiably with a known communist. Here the 'conversational attitude of the two subjects' is a negative feature among an anti-communist electorate.

The key term is 'special credibility'. Photographs, even when they have a consciously constructed 'style', can feign 'styleness' and thus claim greater objective, veridical, and *verisimilitudinal* value. However, we know from the example of cinema vérité that absence of style is a style itself, consciously constructed as in, say, a Frederick Wiseman film, to create an impression of verisimilitude (cf. Earle, 1979[1968]). However, to document is to alter. In another example, Snyder (1984) points out that the Walker Evans Depression photographs were actually highly stylized, but: 'We are quite content to accept these pictures as objective records because the formulae employed are "second nature" to us and because pictures using these forms are often said to be "style-less"' (p. 94). The absence of 'artsy' or heavy-handed propaganda techniques helps convince the audience that the photos are depictions of reality. The two groups – opposed on all basic facts – agree that photos can show truth if only one knows what to look for.

This is a problem for those of us teaching new generations of photo-creators and photo-audiences (who are, of course, in a world of MySpace and photologs, often the same people). We need simultaneously: (a) to challenge

photo-reality, to encourage naïve viewers to ask whether the images they are seeing on the evening news (or via a website) are indeed what they are represented to be; and (b) assert that there are truths 'out there' and science can help us uncover them. Thus, those of us interested in visual history – that is, tracing the historical development of an image or set of images in terms of the basic facts of their creation or what myths (in a Barthian sense) are held up about, or contrary to, those facts and how they have developed over time – should further examine competing narratives about not only what such pictures mean but what they show. Perhaps scholars interested in leaping into rhetorical, ideological, or symbolic analyses – studies of what is actually in a picture and what people say about it – may find this simplistic, but we argue that it is part of the greater project of understanding images in our lives.

NOTES

1. 'Around the same time' must be a flexible term to Overstreet since it was three years later, in 1972, that America withdrew its last combat troops from Indo-China and three years later that the Vietnam War actually ended. But the basic point about a government needing a 'wag the dog' distraction from bad news was indeed applicable in 1969.
2. The authors of this article believe that there was a moon landing and that the moon-hoax conspiracy theorists – or, as they would prefer it, the moon-landing debunkers – are plain wrong. However, at the suggestion of a reviewer, we have endeavoured not to cast the moon hoaxers as crackpots. Rather, we focus on how they contend to have uncovered visible evidence in the moon-landing photos that indisputably offers proof of their theory. As we found, that evidence is – on the surface – quite superficially compelling, especially to the non-scientist.

REFERENCES

- Asimov, I. (1973) *The Tragedy of the Moon*. New York: Abelard-Schuman.
- Bailey, G. A. and Lichty, L.W. (1972) 'Rough Justice on a Saigon Street: A Gatekeeper Study of NBC's Tet Execution Film', *Journalism Quarterly* 49(2): 221–9.
- Barthes, R. (1993[1979]) *Camera Lucida – Reflection on Photography*, trans. R. Howard. Berkeley: University of California Press.
- Bennett, E.M., Swenson, J.D. and Wilkinson, J.S. (1992) 'Is the Medium the Message? An Experimental Test with Morbid News', *Journalism Quarterly* 69(4): 921–8.
- Borchert, J. (1981) 'Analysis of Historical Photographs: A Method and a Case Study', *Studies in Visual Communication* 7(4): 30–63.
- Borchert, J. (1982) 'Historical Photo-Analysis: A Research Method', *Historical Methods* 15(2): 35–44.

- Bossen, H. (1985) 'A Tall Tale Retold: The Influence of Photographs of William Henry Jackson upon the Passage of the Yellowstone Act of 1872', *Studies in Visual Communication* 8(1): 8–109.
- Bowdley, D. (2003) 'Hollywood Goes to the Moon: The Greatest Hoax of Them All?', *Physics Educator* 38(5): 406–12.
- Brugioni, D.A. (1999) *Photo Fakery: The History and Techniques of Photographic Deception and Manipulation*. Dulles, VA: Brassey's.
- Conspiracy Theory: Did We Land on the Moon?* (2001) *Fox News*, 15 February.
- Culver, R., Rotton, J. and Kelly, I.W. (1988) 'Moon Mechanisms and Myths: A Critical Appraisal of Explanations of Purported Lunar Effects on Human Behavior', *Psychological Reports* 62(2): 683–710.
- Dauber, C.E. (2001) 'The Shot Seen Round the World: The Impact of the Images of Mogadishu on American Military Operations', *Rhetoric and Public Affairs* 4(4): 653–87.
- Domke, D., Perlmutter, D.D. and Spratt, M. (2002) 'The Primes of Our Times? An Examination of the "Power" of Visual Images', *Journalism* 3(2): 131–59.
- Earle, W. (1979[1968]) 'Revolt against Realism in Films', in G. Mast and M. Cohen (eds) *Film Theory and Criticism*, pp. 33–44, 2nd edn. New York: Oxford University Press.
- Edwards, J.L. (2004) 'Echoes of Camelot: How Images Construct Cultural Memory through Rhetorical Framing', in M. Helmers and C.A. Hill (eds) *Defining Visual Rhetorics*, pp. 179–94. Mahwah, NJ: Erlbaum.
- Edwards, J.L. and Winkler, C.K. (1997) 'Representative Form and the Visual Ideograph: The Iwo Jima Image in Editorial Cartoons', *Quarterly Journal of Speech* 83(3): 289–310.
- Goldberg, V. (1991) *The Power of Photography: How Photographs Changed Our Lives*. New York: Abbeville.
- Gombrich, E.H. (1989[1960]) *Art and Illusion: A Study in the Psychology of Pictorial Representation*. New York: Pantheon.
- Hariman, R. and Lucaites, J.L. (2004) 'Public Identity and Collective Memory in U.S. Iconic Photography: The Image of "Accidental Napalm"', *Critical Studies in Media Communication* 20(1): 35–66.
- Harter, L.M. and Japp, P.M. (2001) 'Technology as the Representative Anecdote in Popular Discourses of Health and Medicine', *Health Communication* 13(4): 409–25.
- Hartz, J. and Chappell, R. (1997) *Worlds Apart: How the Distance between Science and Journalism Threatens America's Future*. Nashville, TN: First Amendment Center.
- Hoberman, J. (1994) 'Moon Dance', *Artforum International* 32(10): 10–13.
- Jaubert, A. (1989[1986]) *Making People Disappear: An Amazing Chronicle of Photographic Deception*. Washington: Pergamon-Brassey's.
- Johnson, N.C. (2002) 'Mapping Monuments: The Shaping of Public Space and Cultural Identities', *Visual Communication* 1(3): 293–8.
- Khatib, L. (2004) 'The Politics of Space: The Spatial Manifestations of Representing Middle Eastern Politics in American and Egyptian Cinemas', *Visual Communication* 3(1): 69–90.

- Kuhn, T.S. (1970) *The Structure of Scientific Revolutions*, 2nd edn. Chicago: University of Chicago Press.
- Kulikova, S.V. and Perlmutter, D.D. (2007) 'Blogging Down the Dictator? The Kyrgyz Revolution and "Samizdat" Web Sites', *Gazette* 69(1): 29–50
- Lessard, L. (2001) 'The World Turned Inside Out', *Wilson Quarterly* 25(3): 10.
- Lester, P.M. (2007) 'Floods and Photo-Ops: A Visual Historiography Approach', *Visual Communication Quarterly* 14(2): 114–26.
- Major, L.M. and Perlmutter, D.D. (2005) 'The Fall of a Pseudo-Icon: The Toppling of Saddam Hussein's Statue as Image Management', *Visual Communication Quarterly* 12(1&2): 38–45.
- Malmsheimer, L.M. (1985) 'Imitation White Man: Images of Transformation at the Carlisle Indian School', *Studies in Visual Communication* 11(4): 54–75.
- Malmsheimer, L.M. (1987) 'Photographic Analysis as Ethnohistory: Interpretive Strategies', *Visual Anthropology* 1(1): 21–36.
- Margolis, E. (1988) 'Mining Photographs: Unearthing the Meaning of Historical Photos', *Radical History Review* 40(1): 33–47.
- McDonough, T.R. (1987) *Space: The Next 25 Years*. New York: Wiley.
- Monk, L. (1989) *Photographs that Changed the World: Photographs as Witness, Photographs as Evidence*. New York: Doubleday.
- Moon Hoax. URL (accessed multiple times between Oct. 2004 and July 2006): www.redzero.demon.co.uk/moonhoax
- NASA. URL (accessed multiple times between Oct. 2004 and July 2006): <http://www.nasa.gov>
- Newton, J.H. (2000) *The Burden of Visual Truth: The Role of Photojournalism in Mediating Reality*. Mahwah, NJ: Erlbaum.
- Oberg, J. (2003) 'Lessons of the "Fake Moon Flight" Myth', *The Skeptical Inquirer* 27(2): 23–4.
- Perlmutter, D.D. (1994a) 'The Practical Problems of Studying Images for Historical Research', *Clio-Journalism History* 26(3): 4–6.
- Perlmutter, D.D. (1994b) 'Visual Historical Methods: Problems, Prospects, Applications', *Historical Methods* 27(4): 167–84.
- Perlmutter, D.D. (1997a) 'A Picture's Worth 8,500,000 People: News Images as Symbols of China', *Visual Communication Quarterly* 4(2): 4–7.
- Perlmutter, D.D. (1997b) 'Re-Visions of the Holocaust: Textbook Images and Historical Myth-Making', *Howard Journal of Communication* 8(2): 151–9.
- Perlmutter, D.D. (1998) *Photojournalism and Foreign Policy: Icons of Outrage in International Crises*. Westport: Praeger.
- Perlmutter, D.D. and Wagner, G.L. (2004) 'The Anatomy of a Photojournalistic Icon: Marginalization of Dissent in the Selection and Framing of 'A Death in Genoa'', *Visual Communication* 3(1): 91–108.
- Peters, M. and Mergen, B. (1977) 'Doing the Rest: The Uses of Photography in American Studies', *American Quarterly* XXIX(3): 280–303.
- Plait, P. Bad Astronomy. URL (accessed multiple times between Oct. 2004 and July 2006): <http://www.badastronomy.com/bad/tv/foxapollo.html>

- Popper, K. (1979[1972]) *Objective Knowledge: An Evolutionary Approach*, rev.edn. Oxford: Clarendon Press.
- Rundell, W. Jr (1978) 'Photographs as Historical Evidence: Early Texas Oil', *American Archivist* 41(4): 373–98.
- Shermer, M. (2002) *Why People Believe Weird Things: Pseudoscience, Superstition and Other Confusions of Our Time*. New York: Henry Holt.
- Snyder, J. (1984) 'Documentary without Ontology', *Studies in Visual Communications* 10(1): 78–95.
- Ward, P.D. and Brownlee, D. (2000) *Rare Earth: Why Complex Life Is Uncommon in the Universe*. New York: Copernicus Books.
- Worth, S. (1981) 'Studying Visual Communication', in Sol Worth and Larry Gross (eds) *Studying Visual Communication*. Philadelphia: University of Pennsylvania Press Publications in Conduct and Communication.

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