Creating a contemporary depiction of the lunacy myth

Ryan Shields

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Supervisors

Annette O'Sullivan • Caroline Campbell • Jacquie Naismith

Annette O'Sullivan

Caroline Campbell

Jacquie Naismith

Ying-Min Chu

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Abstract

For many people born in the latter decades of the twentieth century the defining global event was 9/11. For those born in the earlier and mid-decades that moment was the American space race of the 1960s. This project examines the historical and symbolic legacy of that endeavour from a postmodern perspective. In it I investigate how in addition to scientific rationalism, lunacy and madness characterised the American lunar quest of the 1960s.

The focus of this thesis is on exploring historical and contemporary art and design depictions of the moon, with particular interest in the representation of lunacy and the visual reportage of the American lunar quest. The role of myth and the use of signifying visual codes in maintaining or departing from mythic archetypes is explored. Additionally the thesis investigates the communicative potential of infographics in raising awareness about the magnificent madness that was the American lunar quest. The research findings will be synthesised into a visual design that fuses moon landing facts with the myth of lunacy. This design will be targeted at an audience aged twenty to thirty.

Contents

Introduction

This thesis examines the historic and contemporary depiction of the moon and in particular the myth of lunacy. The lunacy myth is an ancient and enduring archetype that suggests that the moon can influence people's minds, turning them into lunatics. In *The moon: Myth and image* (2003), Jules Cashford claims that contrary to popular preconception lunacy originally meant "ecstatic possession by the moon goddess, which could bring about revelation or madness" (Cashford, 2003, p. 282). The dual states of enlightenment and delusion that are central to the myth of lunacy are integral to this thesis and the design work comprising the visual argument. Hence the terms madness, hysteria, lunatics and lunacy are used interchangeably and will conform to the paradox inherent in Cashford's description rather than an explanation you might find in a dictionary or medical journal.

The title of this thesis and the design output associated with it is taken from and inspired by Gerard De Groots book entitled *Dark side of the moon: The magnificent madness of the American lunar quest* (2006). This text is used as a case study through which I explore the myth of lunacy by investigating the madness of the 1960s moon landings. In this book De Groot asserts that America's journey to the moon was riddled with the hallmarks of lunacy; delusions of grandeur, ambition at any cost, egotism over logic, mass hysteria, and a mad idea sustained through pure genius. De Groot's account of the lunar quest constitutes the primary literature that the design output of this thesis represents.

Through an analysis of the precedent work and through practice-based research this thesis explores the pictorial history of the moon and the myth of lunacy, the use of signifying visual codes in conveying that myth, and the communicative potential of infographics in raising awareness of the magnificent madness of the American lunar quest. Through a synthesis of these theories and findings the design output will serve as a contemporary visual representation of the myth of lunacy.

Background

The moon is believed to influence human thought and behaviour. It tugs at our imaginations and drives us toward all manner of enquiry and expression. The idea that the moon influences the affairs of mankind can be traced back to antiquity, where celestial bodies were believed to command earthly affairs (Zanchin, 2001). This conclusion emerged from observations that the changing constellations, planets, and moon ushered in the seasons. In so doing, these celestial forms acted as gods, controlling the fate of the earth. The potency of this assertion is found in the multitude of beliefs, practises and artefacts with links to the moon. Some of these will be briefly outlined here in order to establish a context for my argument that the American lunar quest is a contemporary expression of the lunacy myth.

The moon features in the myths associated with most ancient cultures. For example, in the myths of ancient Greece and Rome the moon has six different personifications, each representing a different aspect of lunar lore. One of those personifications was the goddess Luna from whom the terms lunar, lunatic and lunacy derive. The moon is also an integral part of contemporary myth as evident in its frequent use to signify fear and unease in film. Furthermore, the moon has long been the subject of scientific study. Lunar astronomy encompasses a vast field of investigation, ranging from studies of its rhythms and appearance to speculating on its origins, geometry or composition. From the moon's phases people have developed a system of weeks and months by which to map out time. Etymologically the words measurement, Monday and month derive from the same root word as moon (Cashford, 2003). Its cyclical nature is seen as symbolic of the phases of human experience, from birth to life and through to death. Such symbolism is never more potent than the transformation from day to night during a solar eclipse. Moreover the moon has influenced the development of technology. In order to see the moon more clearly, Galileo constructed the telescope and America developed interplanetary rockets in order to achieve a lunar landing. Furthermore, the moon is causative in shaping cultural values, as is evident in the socio-cultural and political changes wrought by the 1960s race to the moon. I maintain that without the moon to gaze upon, to study and to travel to, global culture would be less rich.

In researching the written and visual history of the moon, it is clear that the lunacy myth is the quintessential lunar archetype. Cashford asserts that "the essential myth of the moon is the myth of transformation" (Cashford, 2003, p. 8). I argue that the myth of lunacy affirms this assertion in two ways. Firstly, like the moon it is cyclical in nature; in that it is being constantly reinvented. Secondly, like the change from full to new moon, the descent from sanity to insanity is itself a complete transformation of the human mind.

In addition to being the prototypical moon myth, lunacy is also the most enduring lunar myth. The lunacy myth derives from a pseudoscientific discourse put forward by Hippocrates (c 460 - c 370 BC). Hippocrates hypothesised that moisture in the brain swells up at full moon with the extra pressure causing acts of moon madness. Following on from Hippocrates, Aristotle (c 384 - c 322 BC) proposed that the moon gave rise to feminine hysteria. His theory was based on the observation that the lunar month and the menstrual cycle appeared to mirror each other. As an influential figure in astronomy Aristotle's musings were readily disseminated amongst scholars. Subsequently the lunacy myth has been referred to, or alluded to countless times in sources as diverse as medieval medical journals, 19th century graphic newspapers, to modern literature and film. Adaptions of the lunacy archetype include,

amongst others, the madness of lycanthropes, who are transformed into crazed beasts by the light of the full moon (Copper, 1977); the impact of the full moon upon sufferers of bipolar disorder, who are more likely to experience manic bouts when deprived of sleep (Raison et al, 1999); ancient peoples' hysterical response of fear and panic on sighting a solar eclipse (Haining, 1979); and more recently the magnificent madness of the American lunar quest (De Groot, 2006).

In the history of lunacy the line between scientific fact and fiction is often blurred. There are two compelling contemporary hypotheses that attempt to explain why the moon might influence the mind. The first, developed by Arnold Lieber, is essentially an extension of Hippocrates' hypothesis and is known as the biological tides theory. In this theory Lieber speculates that "the moon, via the effects of gravitational forces on the human organism, causes cyclic changes in water flow among the fluid compartments of the body" (Iosif & Ballon, 2005, p. 1499). The changes to typical body fluid rhythms is argued as the causative factor in moon madness. The second, and more convincing argument in my opinion, is that the light of the full moon keeps people awake at night and drives them to insanity. It is based on evidence that even slight sleep deprivation can induce mania (Raison et al., 1999). There exists evidence for and against the lunacy hypothesis (Campbell & Beets, 1978; Salvatore Garizno, 1982). The authors of *The moon and madness reconsidered* (Raison et al., 1999) propose that the folklore origins of the lunacy theory are based on fact, but that modern dependance upon electric lighting has rendered the data void. These scholars suggest that a study be undertaken in an area in which moonlight is still the most influential source of illumination at night. While the adverse effects of the moon on the mind have yet to be conclusively proven scientifically, the popular belief in lunacy still resonates strongly within our collective psyche. Consequently I contend that the lunacy myth remains integral to the history of the representation of the moon.

The American lunar quest of the 1960s is a contemporary manifestation of the lunacy myth. It was an event that in addition to scientific rationalism had all the symptoms of magnificent madness. The connection between madness and the space race have best been captured in Gerard De Groot's book entitled *Dark side of the moon: The magnificent madness of the American lunar quest* (2006). In this key text De Groot begins by outlining how the modern rocket was the product of the horrors of a World War II slave camp known as Mittelbau Dora. It was there that the German rocket scientist Wernher Von Braun oversaw the production of his intercontinental V2 rocket. Every month this facility would work to death 2,000 prisoners, while the rockets it produced were responsible for 2,700 deaths and over 6,000 injuries. De Groot contrasts the madness of sacrificing human life for rockets with the utopian aspirations of the engineers overseeing their production. For rocket scientists like Von Braun, living in outer space was mankind's destiny and was argued as the next great step in the development of the human species. They believed that through great sacrifice mankind would be able to escape the gravity of earth and live out the fantasy of space travel. By drawing attention to both the degeneration of the human spirit and the dreams of intelligent minds, De Groot reflects the paradoxical nature inherent in the myth of lunacy.

De Groot goes on to discuss how the development and manufacture of V2 rocket technology was adapted and used by the Soviets and the Americans to bolster their escalating obsession for world prestige. The author talks of how the launch of the Sputnik satellite was one of the defining moments in the American lunar quest as it shocked the United States out of complacency and impelled them, headlong, into a race for space. De Groot makes the observation that the rivalry was driven by the very nature of a race. Reason and logic where discarded in an all consuming competition to be the first to conquer the heavens. Moreover, it was status not the practical applications of satellites that the super powers craved. Consequently both nations began to use advances in rocket technology as metaphors for progress; despite the inadequacy of such a metaphor to accurately describe their citizens' quality of life.

Additionally De Groot examines the media frenzy which packaged the moon landing as the pursuit of mankind's last unconquered territory. He investigates how NASA promoted the idea that just as America was founded on the backs of pioneer heros so too would the outer space be civilised by heroic astronauts. One account describes a Christmas service that was broadcast to 500 million people from on board Apollo 8. De Groot claims that counter to promoting the science and technology that took them there, this public broadcast effectively promoted the lunar missions as a triumph of the human spirit. The author goes on to say that without making the heroic human fundamental to the Apollo missions the American public never would have funded a trip to the moon. Degroot then juxtaposes the desire to conquer space with significant and tangible challenges that required 'conquering' back on earth. He talks about how the inequality between mankind is more vast than the distance between the earth and its planetary satellite. To highlight his point De Groot refers to Whitney Young who said; "It will cost thirty five billion dollars to put two men on the moon. It would cost ten billion dollars to lift every poor person in this country above the official poverty line. Something is wrong somewhere." (De Groot, 2006, p. 200). De Groot again draws on the paradox of lunacy to highlight the magnificent madness of conquering the heavens before dealing with earthly concerns.

De Groot continues drawing parallels between the moon landings and lunacy by questioning the legacy of the American President, John F. Kennedy. Kennedy is introduced by the author as the visionary who supported NASA's quest to explore space. However, De Groot points out that as costs skyrocketed Kennedy was unable to tame NASA's budget, as he had bound his political fate to that of the agency. The author claims that during his time in office, and as a martyr for NASA in his death, Kennedy placed a financial burden upon the American citizenry akin to fiscal moon madness.

De Groot ends his account of the magnificent madness of the American lunar quest by pointing out that the moon is utterly desolate. He maintains that it was the phrase "magnificent desolation" (De Groot, 2006, p. 242) uttered by Buzz Aldrin as he stepped onto the moon, not the words of Neil Armstrong, that truly reflects the nature of the American lunar quest. De Groot sees the lunar landing as magnifcent because of the manpower, the intellegence, the resolve, the bravery and the imagination required to achieve the feat. However he sees it as desolate in purpose as the moon has nothing of value to improve human existence. De Groot goes on to maintain that the most outstanding benefit of the moon landing was not an expansion of lunar knowledge but a greater appreciation for planet earth. This was in part due to a photograph taken onboard Apollo 8 of the earth rising above the horizon of the moon. That image made mankind realise how precious our planet is. Furthermore it revealed that the utopia of a life lived in the heavens was far removed from the difficulty of traversing the vastness of the space.

De Groots account of the magnificent madness of the American lunar quest as well as other obsessive, banal and bizarre facts about the moon, and America's journey there form the basis for this research project.

Central Proposition

This thesis investigates the depiction of the lunacy myth. It explores this through a retelling of the American lunar quest of the 1960s, an event which was characterised by scientific rationalism and by lunacy. It examines how image, typography, colour, form and composition can be coded and arranged in the retelling of this myth and in communicating the magnificent madness of the American lunar quest.

Aims

This project aims to:

- Report both the banal and the bizarre facts about the moon as well as the magnificent madness of the American quest in getting to this lunar destination. In doing so it will create a contemporary depiction of the lunacy myth.
- Apply theoretical concepts associated with myth and semiotics to the analysis of precedent work. Findings from this process will inform the strategies which direct the practice-based research.
- Draw on infographic theory to guide design decisions during practice-based research.

Wider significance of project

Science is seen by many to have disproved the explanatory role of myth. Subsequently mythic systems that have been regarded as giving context, structure and meaning to life have lost their credibility. Subsequently even their symbolic value has become underrated as a means for understanding the world. Myths are the substance of culture. They are constructed and maintained around us every day, thus giving shape to our lives. As cultural structures they are equally as valid as scientific systems of understanding and conveying information.

This project attempts to develop a method for consolidating story-led and data driven communications strategies; a hybrid system of representation that is both mythic and scientific. I propose that in doing so a more complete and authoritative story of lunacy is able to be constructed. This proposal is based on Edward Tufte's suggestion that "explanatory investigations, if they are to be honest and genuine, must seek out and present all relevant evidence regardless of mode" (Tufte, 2006, p. 131).

With a few exceptions, most discourse concerning the moon and lunacy is scholarly in nature which has consequently resulted in a range of people being excluded from the conversation. This project seeks to rectify this situation by repackaging the lunacy myth from the perspective of popular culture. The repackaging of visual and literary material will include designing a piece of work that is understandable and accessible, entertaining and educative. My hope is that this approach will subsequently create a method of visual communications that can be applied elsewhere to make the acquisition of knowledge more accessible to the layman.

Furthermore, this project will contribute to design practice by highlighting the role of designers as contemporary myth makers. At a time when visual storytelling is fast becoming the dominant mode of communication, designers possess the potential to act as instigators or catalysts for that story-telling process. As designers use visual language to perpetuate or depart from mythic archetypes, they play a vital role in creating and maintaining cultural myths. Accordingly it is worth carefully considering the steps central to this process.

Audience

This research project is aimed at twenty to thirty year-old urban professionals. Generally speaking, light pollution is such that for this demographic the night skies are starless and the moon is the only object able to pierce the city's neon glow. Despite its dominant presence in the sky, this group is unfamiliar with the correlation between the moon, myth and science. Furthermore their exposure to the story of the American lunar quest is limited, as it occurred before their lifetime.

Growing up with instant media like the internet and television influences the way this audience seeks out information (McCrindle & Wolfinger, 2009). The immediacy of live television and the quick cuts predominant in contemporary film have nurtured short attention spans. Consequently the provision of bite size chunks of information that quickly connect at emotional and intellectual levels is essential to designing for and communicating to this audience. On the other hand the internet has fostered an ability to ferret out information in a vast sea of data. Hence visual communications should be accessible, and multilayered to cater for both the inquisitive and casual viewer.

In his book entitled *Authenticity* (2004) David Boyle discusses what he believes is the new paradigm emerging out of the post-modern epoch. Boyle argues that driving this emerging culture is a desire for a return to authenticity. He asserts that interest in the plastic fantastic has waned and that this is indicative of a shift in our collective conscious towards a more organic, simpler way of life. If Boyle is correct, it makes sense that visual communications are targeted at this desire for the authentic. Consequently depictions of the moon should find a balance between the humanistic and the technological, the handmade and the mass produced, the physical and virtual.

Research methods

This project stems from an interest in how visual communication design uses signifying visual codes to perpetuate or depart from mythic structures. Consequently it is based on understanding the communicative capacity of two key theoretical concepts. The first involves the function of myth in creating and maintaining cultural beliefs and behaviours. The second entails the application of semiotic theory as a means to decode visual messages within that system. These theoretical areas will be discussed briefly in the following section.

Myth

Underpinning this project is the argument that designers are contemporary myth makers. It is based on the assertion that visual communications have the power to reflect, shape and create contemporary myth. Myth is a complex term with many varying connotations. Hence it is important to define how the term is applied in this project. Firstly, myths are not considered to be simply fictional stories deriving from long ago, as is a common preconception. Rather, myths are stories containing human truths that people have used to shape and live their lives by. They are a set of codes that can be assembled together in order to give human life a meaning and context. They "reflect the society that produces them [and, in turn] determine the nature of that society" (Powell, 2009, p. 17). Viewing myth in this manner places emphasis on the symbolic qualities inherent in their structure as opposed to their explanatory function. Thus I maintain that they are able to coexist alongside scientific explanations of the world's phenomena.

Myth is in a constant state of flux similar to a feedback loop and is constantly being reinvented in order to meet the changing needs of each generation. Roland Barthes (1972) argues that myth is a type of representation which conveys cultural beliefs through contemporary rituals and customs. This view reinforces the idea that myths are stories that shape our lives. Barthes maintains that myth is "by no means confined to oral speech. It can consist of modes of writing or of representations; not only written discourse, but also photography, cinema, reporting, sport, shows, publicity" (Barthes, 1972, p. 110). Barthes' argument has encouraged some mythologists to hypothesise that science is a mythic way of understanding the world. This is because science, like myth, has a set of codes that give structure and meaning to its rituals and practices.

The structural views espoused by Claude Lévi-Strauss provide another way of understanding myth. This structuralist described myth as not comprising a set of isolated ideas, but as the interrelated relationships between ideas. According to Lévi-Strauss it is only in relationship with each other that the components

of myth begin to make sense (Lévi-Strauss, 1972). Thus each new myth is asserted as adding successive layers of meaning to cultural beliefs and practises.

These concepts are mirrored in the writings of the psychoanalyst Carl Jung for whom myth is an amalgam of unconscious archetypes. Jung conceived myth as embedded in the collective psyche of humanity (Segal, 1999). Jung's explanation of myth was developed further by John Campbell who argued that "myths are not exactly comparable to dream ... On the contrary, their patterns are consciously controlled. And their understood function is to serve as a powerful picture language for the communication of traditional wisdom" (Campbell, 1949, p. 256).

Campbell's argument is reminiscent of the role of the designer in the creation and maintenance of mythic stories. Raw creative ideas must be refined and given structure in order to communicate an intelligible and convincing message to an audience. As myth is a powerful system for creating cultural beliefs and behaviour it is worth adopting its principles in the design strategy of this project.

Semiotics

Complementary to myth is semiotic theory. This theory is based on the study of signs and symbols, the systems within which they operate and the context they gain their meaning from. Semiotic theory was first introduced by Ferdinand de Saussure in his 1907 lectures entitled *Course on general linguistics* (Komatsu & Wolf, 1996). In this work Saussure outlines the construction of representation and the relationship between a thing or a concept and the sign which represents it (Rose, 2007). These ideas were further developed by Charles Peirce. Peirce hypothesised that there were three types of signs, namely, the icon which possesses a likeness to the signified, the index which shares an inherent and often culturally established link to the signified, and the symbol, which has an arbitrary relationship to the signified. Peirce was interested in discovering how information was transferred from a signifier to a sign; a process he termed semiotosis. According to Peirce semiotosis is "not a one-way process with a fixed meaning. It is part of an active process between the sign and the reader of the sign. It is an exchange between the two which involves some negotiation. The meaning of the sign will be affected by the background of the reader" (Crow, 2003, p. 36).

Barthes augmented Peirce's theory by developing the concepts of denotation and connotation to describe how signs convey meaning. Denotation is defined as describing directly, and as requiring a low level of visual decoding while connotation tends to "carry a range of higher-level meanings" (Rose, 2007, p. 87). Connotative messages create meaning through

cultural associations and evoked connections. For Barthes semiotics and myth were intertwined. This is because semiotic codes and signs are the means by which myth is brought into existence. Consequently he argued that "myth is not defined by the object of its message, but by the way in which it utters this message" (Rose, 2007, p. 96). This is because signs operate within established systems, codes or mythic structures. As Stuart Hall observes, "codes allow the semiologist access to the wider ideologies at work in a society ... because codes contract relations for the sign with the wider universe of ideologies in a society" (Rose, 2007, p. 95).

In *Reading Images* (1996) Gunther Kress and Theo Van Leeuwen propose a socially influenced semiotic model. For these scholars visual language is the product of established social understandings and agendas. They claim that "pictorial structures do not simply reproduce the structures of 'reality'. On the contrary, they produce images of reality which are bound up with the interests of social institutions within which the pictures are produced, circulated and read. They are ideological" (Kress & Van Leeuwen, 1996, p. 45). Another interesting point Kress and Van Leeuwen make relates to the visual modality of images. They argue that there are degrees of truth in imagery and that modality markers are dependent on the cultural background of the viewer. Thus they maintain that in scientific visual representation the absence of colour is more truthful, as truth in a scientific context is all about data transparency. However, when employed in a naturalistic context, colour is used as a modality marker to depict truth. Hence the meanings of signs are heavily influenced by the contexts and cultures within which they are read as well as the background, context, or beliefs of the reader. This overview of semiotic theory shows that meaning is created and transferred in various and often subtle ways and that the readings of signs is influenced by cultural conditions.

Structuralist knowledge of myth, and the signifying codes which are key to its construction and communication, constitute a significant aspect of this project. By applying that knowledge to unpacking the symbolic language inherent in the precedent work I am able to determine whether the image perpetuates or departs from a mythic archetype. This appreciation further allows me to acknowledge, and subsequently deconstruct, the cultural and symbolic value of that image. This then provides me with an appropriate toolset for analysing the meaning behind the design.

Design precedents

In this section I apply myth and semiotics to the reading of popular and scientific representations of lunacy. This review is comparative. It investigates the manner in which scholars and designers have interpreted and represented the moon's influence on human endeavours. Comparative analysis highlights the strengths and weaknesses, similarities and differences in the design decisions, while semiotic scrutiny is used to deconstruct the meaning behind the visual language. Through a close reading of the selected images I aim to highlight consistently occurring thematic patterns, some of which will form the basis for my personal design response.

The moon has a long and rich visual history. The images in this thesis have been chosen for their iconic treatment of perennial lunar themes, rather than a chronological pattern. The themes include: the relationship between moon, myth and science; the moon as a marker of time and symbol of change; the connection between the moon and technology; the moon and its influence upon the mind; and the magnificent madness of the American lunar quest. These themes draw on and overlap each other and comprise part of the wider myth of the moon. Accordingly, aspects of their unique forms of representation have relevance to the depiction of lunacy. Given the delimitations of this thesis some symbolic elements of the imagery aren't able to be discussed in depth. Instead my discussion focuses on those aspects most representative of the lunacy archetype.

The scope of material for analysis covers the Enlightenment, Modern and Postmodern periods. These movements were selected for their relationship to, and their impact on, the development of the lunacy myth. Moreover, the selection is based on on making links between historical and modernist representations in which belief systems pertaining to superstition and myth continue to be a factor despite the dominance of technology in the latter. The Enlightenment was a period where superstition and astrology lingered, despite advances in technology which saw an expansion in astronomical and lunar knowledge. During this time science and reason began to supplant the mythic form as the legitimate means to describe the natural world. This was achieved through the promotion of science as entertainment, which strengthened its initial and ongoing reception in the educational field (Stafford, 1994). In comparison graphic design of the Modern period used pictographics and simplified forms to make lunar information clearer and more accessible. Like the Enlightenment era, the Modern period privileged rational and scientific methods for explaining the phenomena of the natural and observable world. In contradistinction to these systems the Postmodern model rejects absolute truth in favour of subjective opinion. Accordingly, Postmodern design favours symbolic and metaphorical language over the literal. Furthermore there is a willingness to experiment with accepted modes of visual representation. By comparatively and semiotically examining visual representations of the moon from these historical periods I aim to discover methods for constructing a contemporary rendition of the lunacy myth.

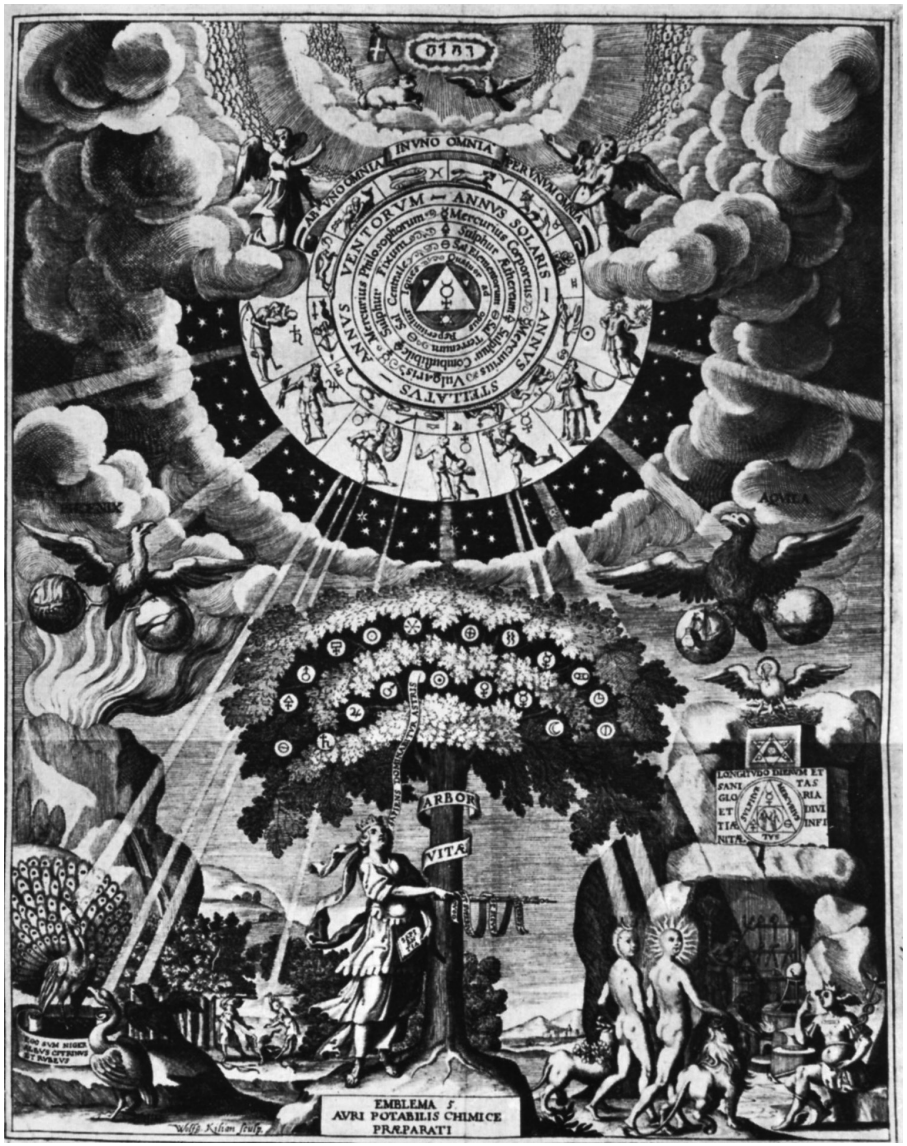


Figure 1. 'Avri potabilis chimice praeparati', 17th century, Microcosmus hypochondriacus. (An illustrated encyclopaedia of traditional symbols. p. 2)

Moon, myth and science

The relationship between mythic symbolism and scientific rationalism is no more apparent than in the cosmographic depictions of the moon and its lunar cycles. My analysis of the precedent work begins with an engraving dating from the 17th century and deriving from Malachias Geiger's *Microcosmus hypochondriacus* (Fig. 1). This image is a classic hybrid of mythic and scientific symbology. The engraving is set within an alchemical text and is filled with an elaborate system of symbolic iconography. A contemporary reading of the image suggests that the original meaning of the symbols has now been lost. This loss in meaning confirms Kress and Van Leeuwen's argument that semiotic systems are socially constructed (Kress & Van Leeuwen, 1996). In this image the symbolic language serves two purposes. Firstly, it maintains the mystique and authority of the alchemist. The complex layering of visual codes is such that in order to fully understand them one must be educated in the visual culture of alchemy. Secondly, the symbols serve as instructions to the initiated in the secrets of alchemy. Similar to scientific notations, each and every one of the symbols contain a set of data. Moreover, Geiger's engraving shows the power of symbolism, particularly of the moon, in both mythic and scientific modes of representation. Thus the engraving is both mythic and scientific in its system of visual representation.

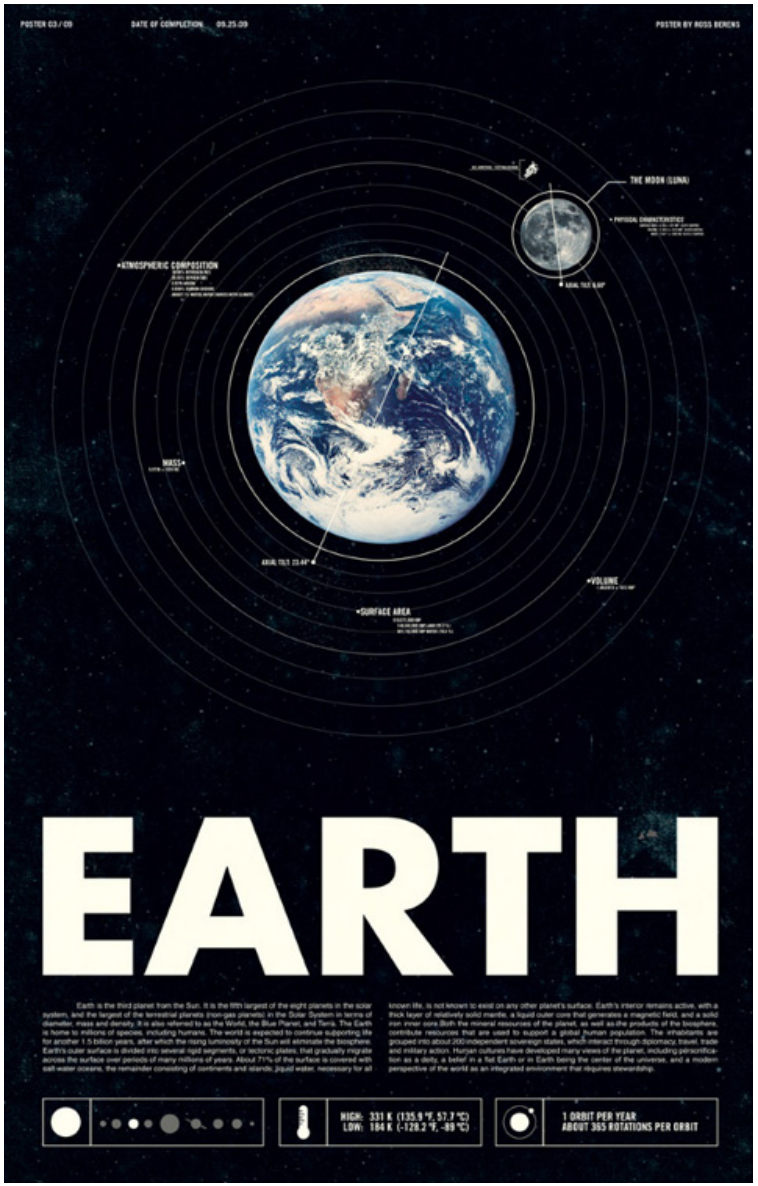


Figure 2. Earth. Ross Berens. 2009. Under the Milky Way. (http://cargocollective.com/)

In 2009 Ross Berens created a series of posters entitled *Under the Milky Way.* In the collection he juxtaposed visual material and scientific data to depict each planet in the solar system. *Earth* (Fig. 2) is one poster from that series. The primary focus of this poster is the orbital relationship between the earth and moon. The composition is a refreshing mix of stylised, semi-scientific simplicity and high modality photographic detail. Through this juxtaposition Berens communicates astronomical knowledge in a manner that engages the heart and the mind. To achieve this balance the designer has compromised scientific accuracy. This graphic expediency suggests that the audience for this work is the layman rather than the specialist. The large typographic feature 'Earth' also departs from the astronomical preference for small, unobtrusive type. The visual and typographic emphasis on the earth lessens the status of the moon so that it is merely seen to orbit the earth as opposed to being its own entity and worthy of separate study. Like the alchemical design by Geiger, *Earth* employs a highly coded, if less embellished, symbolic language. Berens' design uses iconic and realistic photographs which makes it more readily accessible to a present-day audience. Dominant in both designs is the circular motif of the moon. However, the Enlightenment image employs a white sphere to symbolise the moon, while the Postmodern poster features a photograph of the moon. This contrast between metaphorical and literal

visual language is a recurring theme in lunar design which suggests that the method of representation influences the reading of an image.

Moon and time

The phases of the moon (Fig. 3) represents the type of diagram that mankind has employed for centuries to mark the passing of time. Here the moon is set against a black background that mimics outer-space. The stark, graphic treatment of this image combined with the simplified rendering of Earth, ensures the visual emphasis is on the changing appearance of the moon as seen from earth, thus subtly referencing the Aristotelian, earthcentric, world-view. The sun's light is depicted indexically to clearly explain why the moon appears to have changing phases. This is further signalled by the pictograms illustrating the appearance of each phase of the moon. In contradistinction to Berens' design the typography here is unobtrusive and operates to support the information contained in the pictographic elements. The geometric composition formed by the symbolic lunar motifs orbiting the earth is common in both historical and contemporary lunar depiction. It alludes to the philosophy of early Greek astronomy which endeavoured to impart a certain structure and order to the cosmos.

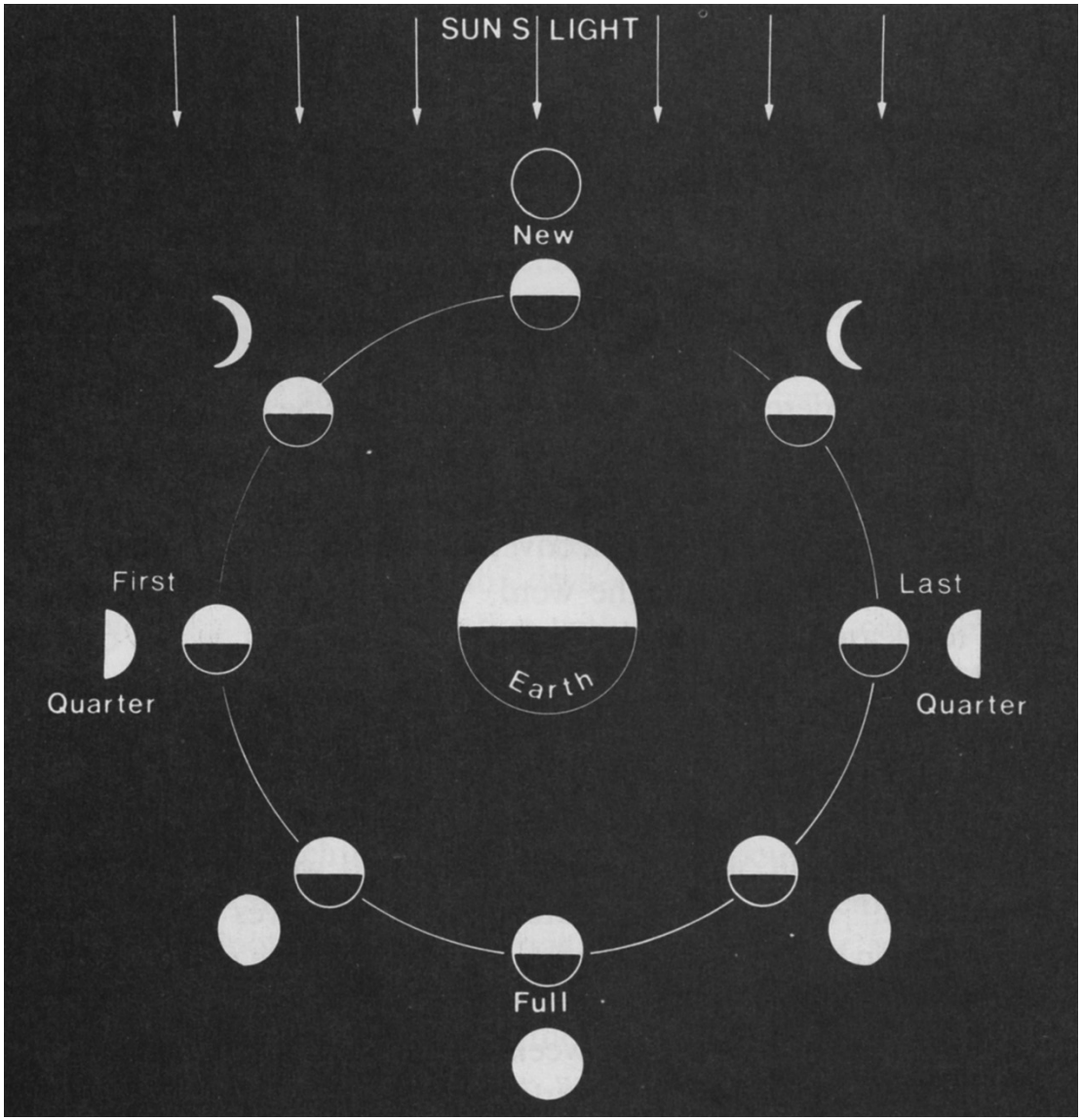


Figure 3. The phases of the moon. Griffith Observatory. 1983. (Echoes of the ancient skies. p. 14)

Moon and change

The cyclical nature of the moon's phases has meant that it has come to signify change, a status that is never so potent as during a solar eclipse. The following images for discussion were created during the Enlightenment and Postmodern periods and concern the eclipse phenomenon. *An explanation of eclipses* (Fig. 4) derives from the *Universal magazine of knowledge and pleasure* (1748). The engraving is composed of two differing treatments of space and time. In the upper section of the composition, a series of diagrams scientifically explain how an eclipse occurs. These are drawn in a simplified but concise manner. In contradistinction the lower section of the composition is a high detail, high modality, depiction of eighteenth-century London. The placement of the landscape beneath the diagrams carries the implication that the city has recently had, or will soon experience, an eclipse. The position of the diagrams over the cityscape encourages the viewer of the period to imagine in their mind's eye what an eclipse would be like in reality. Moreover, locating the diagram over the city alludes to the astrological system of belief that eclipses foretold political and social change. Its contextual placement within a magazine for 'knowledge and pleasure' indicates that in the eighteenth century, learning and enjoyment went hand in hand.

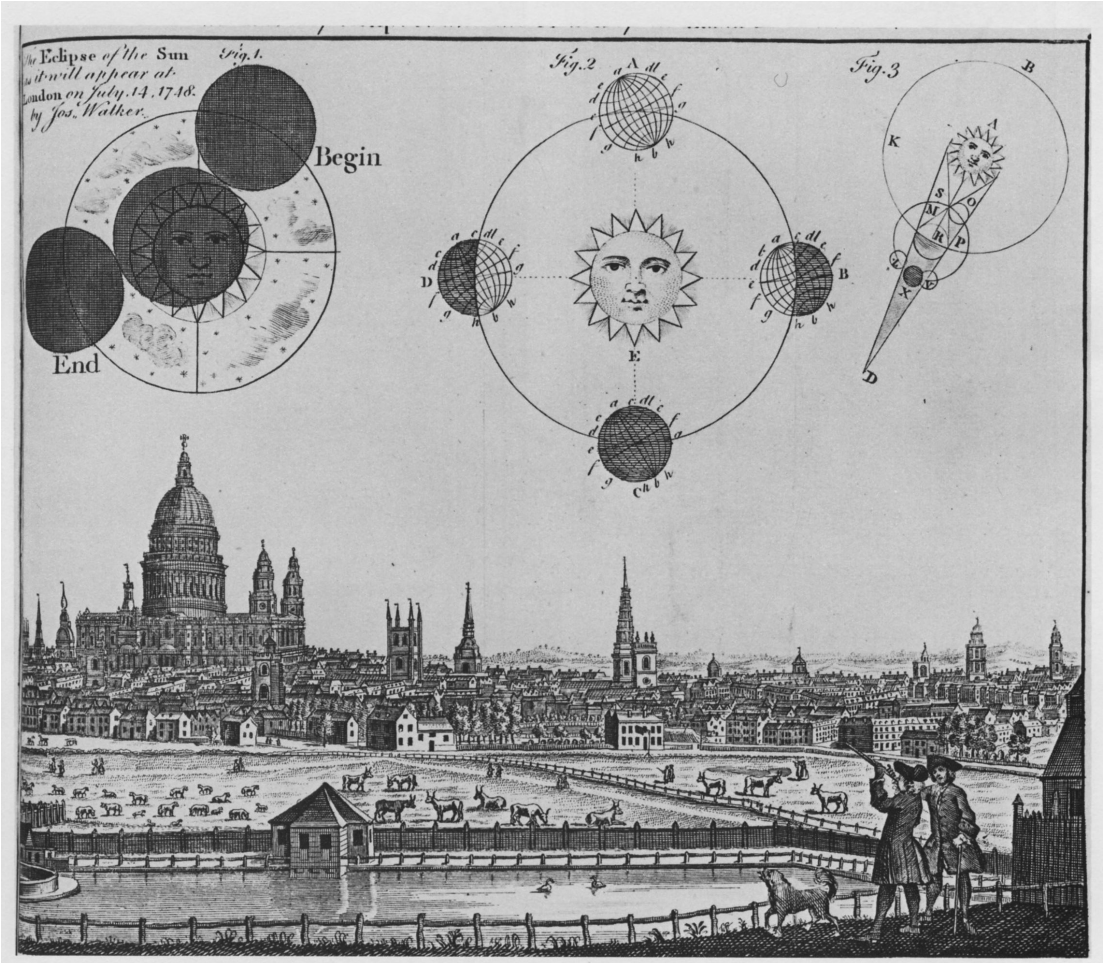


Figure 4. An explanation of eclipses. 1748. Universal magazine of knowledge and pleasure. (Album of science: From Leonardo to Lavoisier 1450-1800. p. 59)

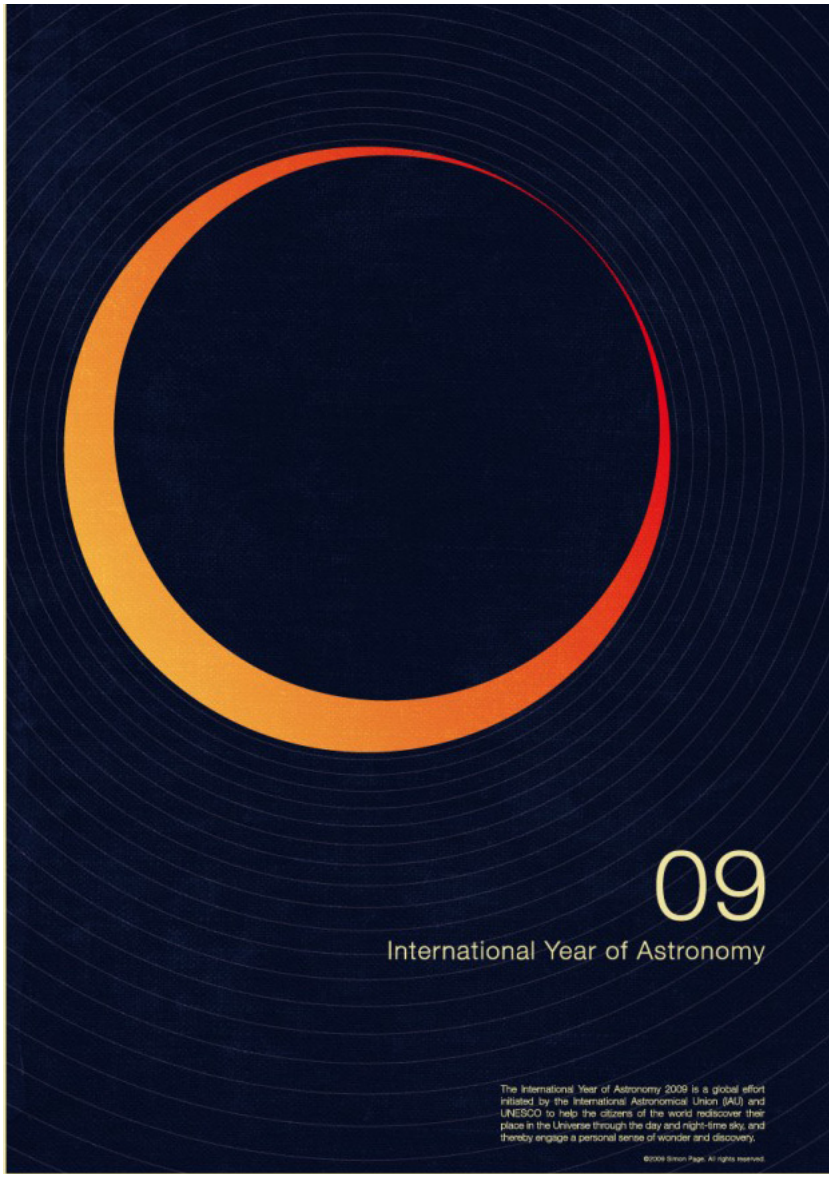


Figure 5. Eclipse from series 'International year of astronomgy'. Simon Page. 2009. (http://simoncpage.co.uk)

Two hundred and fifty years later Simon Page designed a series of posters for the *2009 International year of astronomy*. In each poster Page employs a reduced number of design elements to evoke scientific principles without attempting to explain the complexities of scientific data. In fact, his rendition of a solar eclipse is scientifically implausible (Fig. 5). Page's approach cleverly draws on the authority of scientific modes of representation to infer the emotions of those who witness such astronomical phenomena. The pastel colours, crisp typography and geometric composition all reference the modernist graphic style prominent at the time of the first moon landing. In referencing this historical period Page's designs evoke a sense of nostalgia for a time when outer space and the moon were at the forefront of the public imagination. And while the execution of the design and the contextual placement of icons and symbols differ from *An explanation of eclipses,* the intent is the same, namely to elicit an emotive response in order to secure the viewer's gaze. I argue that by skilfully employing a retrospective aesthetic that evokes the wonder of celestial phenomena Page is able to appeal to, and attract an audience beyond the astronomical community.

Figure 6. Tabula selenographica. Lunar cartography by Johannes Hevelius in 1647. Reprinted as shown in 1742 in Atlas novus coelestis Hevelius. (Album of science: From Leonardo to Lavoisier 1450-1800. p. 57)

Moon and technology

The moon exerts a magnetic pull on human desire to not only visit it but also to understand it better. The outer manifestation of this desire can be found in the various types of technology that have been used to increase our knowledge of the moon, as well as our ability to represent it in ever greater detail. Take for example Galileo's innovative invention, the telescope, which allowed him to challenge existing perceptions regarding the lunar sphere. *Tabula selenographica* (Fig. 6) shows how improvements on Galileo's telescopic technology subsequently impacted visual representation. This lunar illustration originates from a cartographic chart created by Johannes Hevelius in 1647. The dual image allows the reader to directly compare and contrast the changing features of the moon. Despite the focus on this newly acquired scientific knowledge, the chart still makes reference to Selene, a Greek goddess of the moon. Selene is shown occupying the top right of the composition and is being spied on by cherubs in the top left corner. These celestial beings are able to do so because they posses a telescope. This visual celebration of old world myth and new world technology suggests that myth and science are able to complement each other.

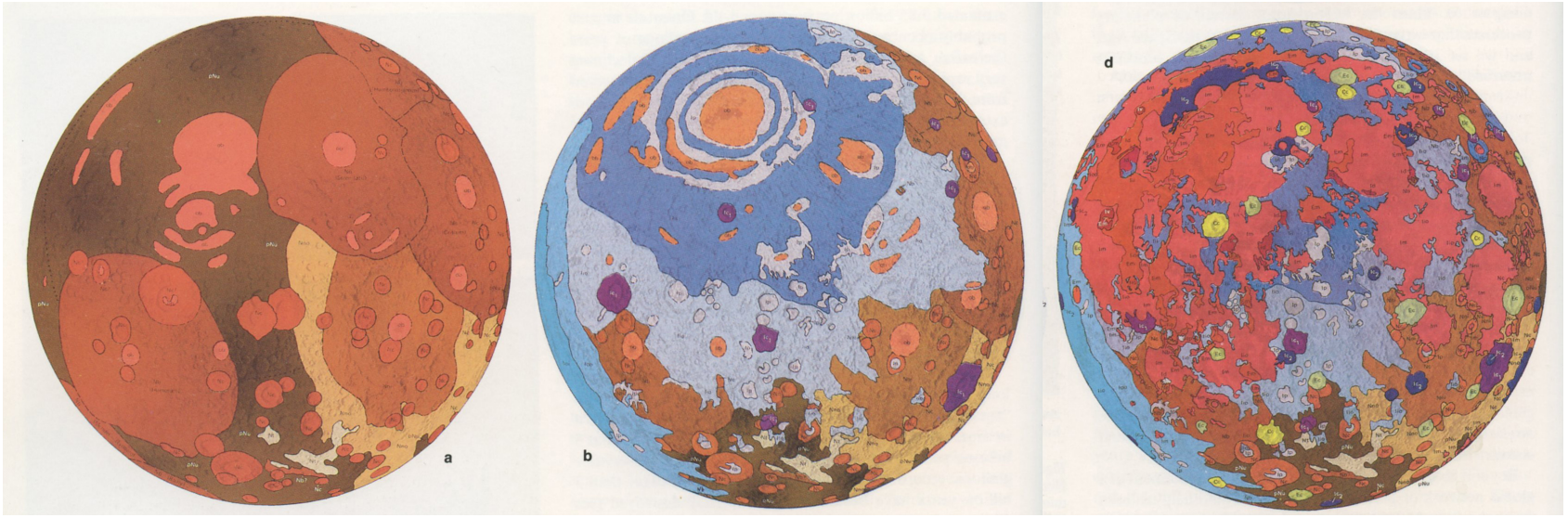


Figure 7. Geologic maps of the changing surface of the moon. 1991. (Atlas of the moon. p. 52)

A key benefit of technological development is that it makes the invisible world visible. The images (Fig. 7) found in *Atlas of the Moon* (1991) are exemplars of this rule. This design uses geologic mapping equipment to tell the story of the changing face of the moon. The chart depicts rock formations that lie beneath the surface in order to describe the events of the past. Furthermore, this type of technology has allowed the designer to introduce colour, a design feature that is largely absent in lunar depictions. Each successive colour denotes a new period of lunar bombardment by solar bodies. As in the use of colour in mapping the earth, the addition of colour in the maps is arresting and demands that the designs be closely studied. Like Johannes Hevelius' moon map, the advances in technology have informed and shaped twentieth-century representations of the lunar surface.

Figure 8. 'The moon on the heads of women.' Anonymous French engraving. Early 17th c. Bibliotheque nationale. (Moon: Myth and image. p. 206)

Moon and mind

The influence of the moon on the mind has been culturally embedded in the collective consciousness since antiquity. The following section deals with the visual representation of lunacy. I begin by analysing two examples from the seventeenth and eighteenth centuries (Figs. 8 & 9). These two images refer to the popular belief that the moon directly manipulates human behaviour.

The moon on the heads of women (Fig. 8) is an early seventeenth century engraving illustrating Aristotle's assertion that the moon controlls the female menstrual cycle. In *History of animals* (c350 BC) Aristotle claimed that "the moon too is female because the women's menstruation and the moon's waning occur together, and after the menstruation and the waning both are made full" (Cashford, 2003, p. 207). In this engraving the anonymous artist has employed the motif of moonbeams shining down on the heads of the woman to make explicit this hypothesis. Moreover, the artist's use of light as a metaphor for sanity suggests that the moon's influence extends only to women. The men, on the other hand, are shown possessing the power of technology in the form of artificial light to protect them from degenerating into a state of hysteria.

Figure 9. The Peruvian response to a solar eclipse. 18th century engraving. Voyage historique de l'Amerique meridionale. (Superstitions. p. 67)

To ancient societies a solar eclipse meant that the two sky gods were locked in deadly combat which would result in Armageddon. The apocalyptic view of the eclipse is still held by many cultures and is even referenced in the *Holy Bible* as a sign of the end of days (Amos, 8.9-10). The assumed response of Peruvians witnessing a solar eclipse (Fig. 9) depicts this belief in vivid detail. The Peruvians are illustrated making a hullaballoo. Dogs are whipped, trumpets are sounded, tambourines are shaken, drums are beaten and voices are wailing in an effort to invoke peace between the warring gods. This engraving is similar to the depiction of Aristotle's hypothesis in that the moon's influence on the mind is shown to be made manifest through physical movement.

The poster created by Cardinal Communications for the 2009 film *Moon* (Fig. 10) successfully captures the indie film's central theme of lunacy. Like Page's poster, this image incorporates a reduced number of design elements to clearly communicate this pivotal idea. The film's solitary protagonist is placed at the centre of a disc of white that signifies the full moon. The white disc is constructed from a series of concentric lines that are designed to evoke the psychological state of madness. The lines expand and contract, thus symbolising a mind spiralling out of control, or imploding in on itself. The asymmetrical alignment of the composition further suggests an imbalanced psyche. The typography is modern, crisp and functional, and is reminiscent of the sterilised technology used on the moon base. The design elements, composition and typography communicate the message that the moon has the power to inflict insanity. Moreover they mirror the clean, rational, modernist style in favour during the Apollo moon landings.

The *Oxford English Dictionary* defines a lunatic as one who is "affected with the kind of insanity that was supposed to have recurring periods dependent on the changes of the moon" (Simpson & Weiner, 2000, p. 105). This emphasis on the cyclical qualities of moon madness correlates with the myth of the werewolf. This myth is constructed on the notion that a man can be transformed into a beast in the

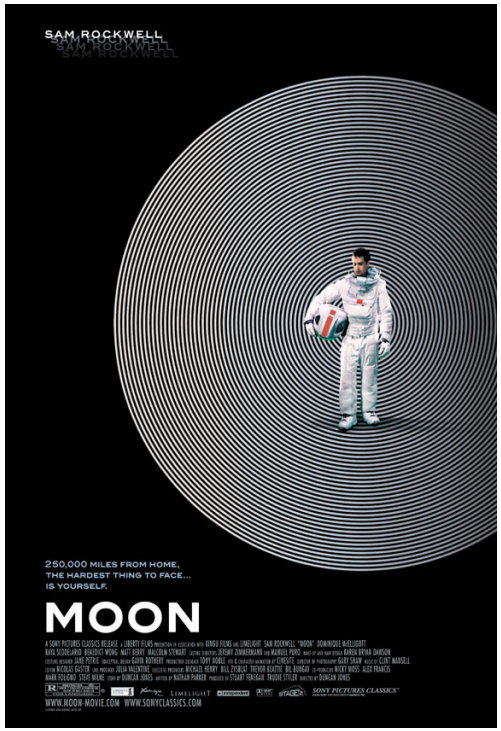


Figure 10. Poster for the film 'Moon'. Cardinal Communications. 2009. (http://www.imdb.com)

Figure 11. Poster for the film 'Underworld'. BLT and Associates. 2003. (http://www.impawards.com)

light of the full moon. Such a metamorphosis acts as a metaphor for losing one's mind. The poster for *Underworld* (Fig. 11) is a contemporary exemplar of werewolf lore. This poster illustrates the symbolic association between the full moon and the werewolf by superimposing the silhouette of a lycanthrope against the moon. In this design the moon is shown as bigger than physically possible, thus emphasising its importance in the transformation from sanity to insanity. This is in direct contrast to the tendency of Enlightenment designs, which depict the moon as literally seen from earth. In addition to the moon's large scale, the brooding colour and Gothic aesthetic combine to symbolise the tortured nature of those who undergo such a transformation. The addition of colour to signify madness is another welcome departure from the historical precedents.

MAN IS ON THE MOON

The Evening Post

MONDAY JULY 21, 1969
Mainly fine PAGE 19
TV PAGE 21
4c

A DREAM OF AGES HAS COME TRUE

SPACE CENTRE (Houston, Texas), July 20.—Neil Armstrong and Edwin Aldrin from a planet called Earth and a nation called the United States of America, settled down onto soil no man had ever touched before. A dream of the ages had come true.

Heaf Factor

Epic Walk

HOUSTON (Texas), July 20.—Man landed on the moon at 4.18pm on Sunday, July 20, 1969 (8.18am, New Zealand standard time, July 21) the Associated Press reported.

Astronauts Neil Armstrong and Edwin Aldrin flew their fragile moon-ship Eagle to a gentle touchdown on the moon today.

"The Eagle has landed," mission control told the world.

Soon after, it was announced that Armstrong's spacewalk would be five hours earlier, but at the time of this edition the moon men were just opening the hatch of the module.

ON TV TONIGHT

A Bare 81 Seconds Out

Saw Hill

Too Busy

Natural

Variety

Keep Ready

Man's first footprints on the moon—a NASA artist's impression of today's fantastic moment as Armstrong walks from the lunar module amid thousands of rocks and small craters. Under the module—code name "Eagle"—is the smooth saucer created by the braking rocket

Figure 12. Man is on the moon. Front page of The Evening Post, July 21 1969.

Magnificent madness

The space race, and the subsequent Apollo 11 moon landing brought about massive changes to the collective psyche of mankind, the effects of which are still being felt today. Understanding the visual ephemera surrounding the Apollo moon landings is the next issue for discussion.

July 21 1969 is a day that is crystallised in the memories of all those who witnessed the event. Figures 12 to 15 are examples of how the moon landing was mediated in popular culture at the time. The bold proclamation from *The Evening Post*, July 21, 1969 front page (Fig. 12) says it all - 'Man is on the moon'. The typography of the banner heading, set white on black, evokes the illuminated moon, while the condensed sans-serif typeface alludes to the slender rocket that propelled the American astronauts into outer space. In the 1960s, newspaper reportage was the primary media for notifying the public of the unfolding story of the American lunar quest. The distinctive grid structure of this period format combined with headlines, photographs, pull quotes and body copy have since become an integral aspect of lunar visual representation.

The photographs taken during the spaceflight document the story of three men who travelled into space, landed on the moon, and came back to earth as heroes. The fuzzy, mysterious images of

man's first steps on the moon seem otherworldly (Fig. 13). The ghost-like images of the Apollo 11 crew bouncing around on the barren lunar surface in 1969 changed forever mankind's perspective regarding our relationship with that mystical, heavenly sphere. They symbolise the climax of rocket research begun thousands of years earlier in China and culminating in the efforts of the National Aeronautics and Space Administration (NASA) and some 400,000 contractors. At the time these images constituted the embodiment of America's hopes for the resolution of the Cold War and the cure-all for its imagined horrors. They also created a fresh interest in the scientific and astronomical inquiry regarding the moon. Furthermore the photograph of earthrise as seen from the moon (Fig. 14) was one of the catalysts inspiring the generational initiative towards environmental sustainability.

This archival material of the moon landing was primarily conveyed through the mediums of film and photograph. In contradistinction to diagrams, sketches and paintings, film and photography are popularly regarded as modern and contemporary modality markers. I contend that anything less 'real' would not have satisfied a public hungry for visual evidence of mankind's greatest feat. This confirms that the media and technology used in the construction of an image is critical in how its meaning is conveyed to its target audience.

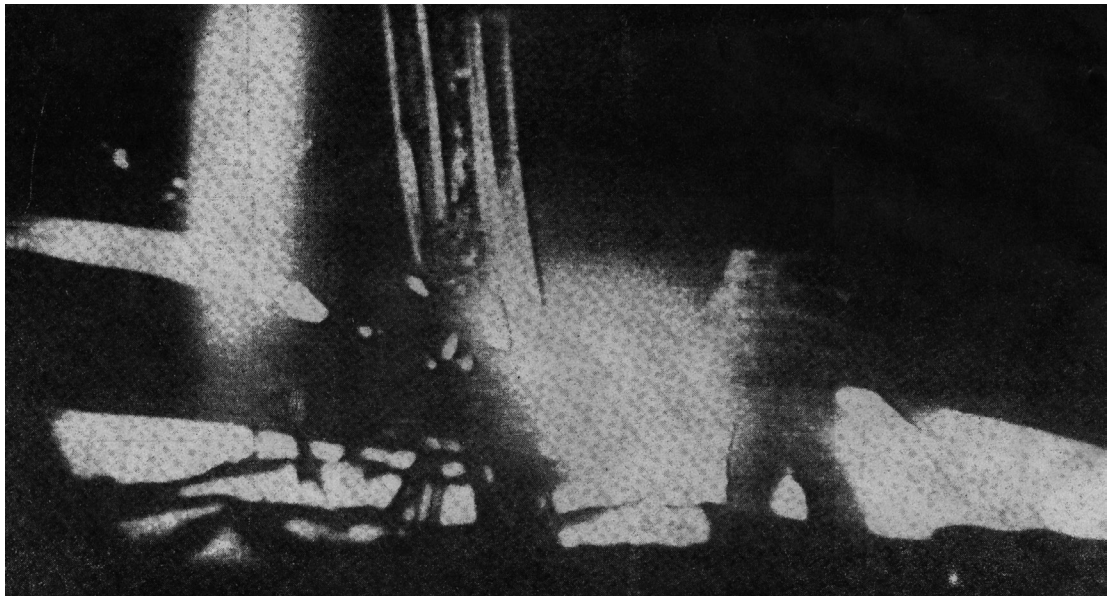


Figure 13. Mankind's first steps on the moon. NASA. 1969. (The Dominion special project. p. 16)

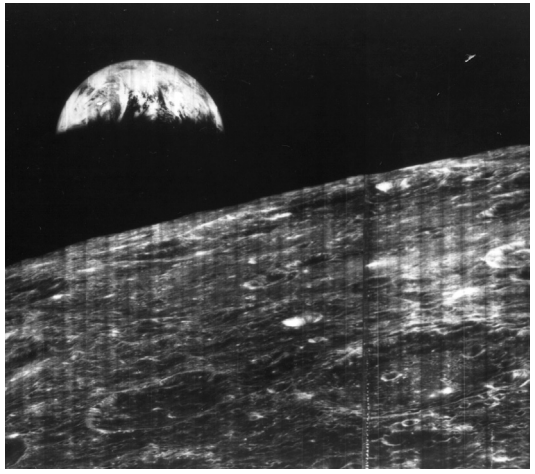


Figure 14. Earthrise, the first view of earth from moon.. NASA. 1966. (http://grin.hq.nasa.gov/)

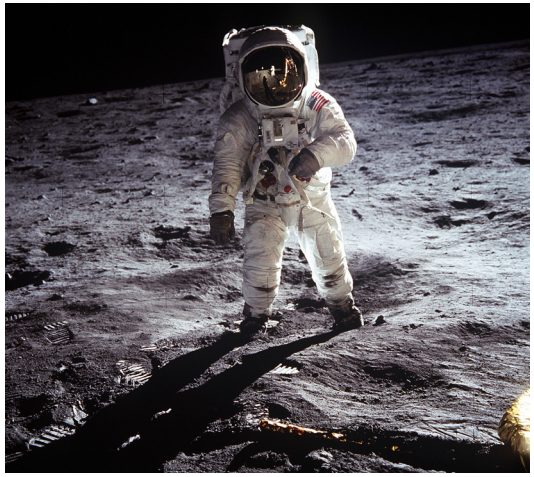


Figure 15. Buzz Aldrin on the moon. NASA. 1969. (http://grin.hq.nasa.gov/)

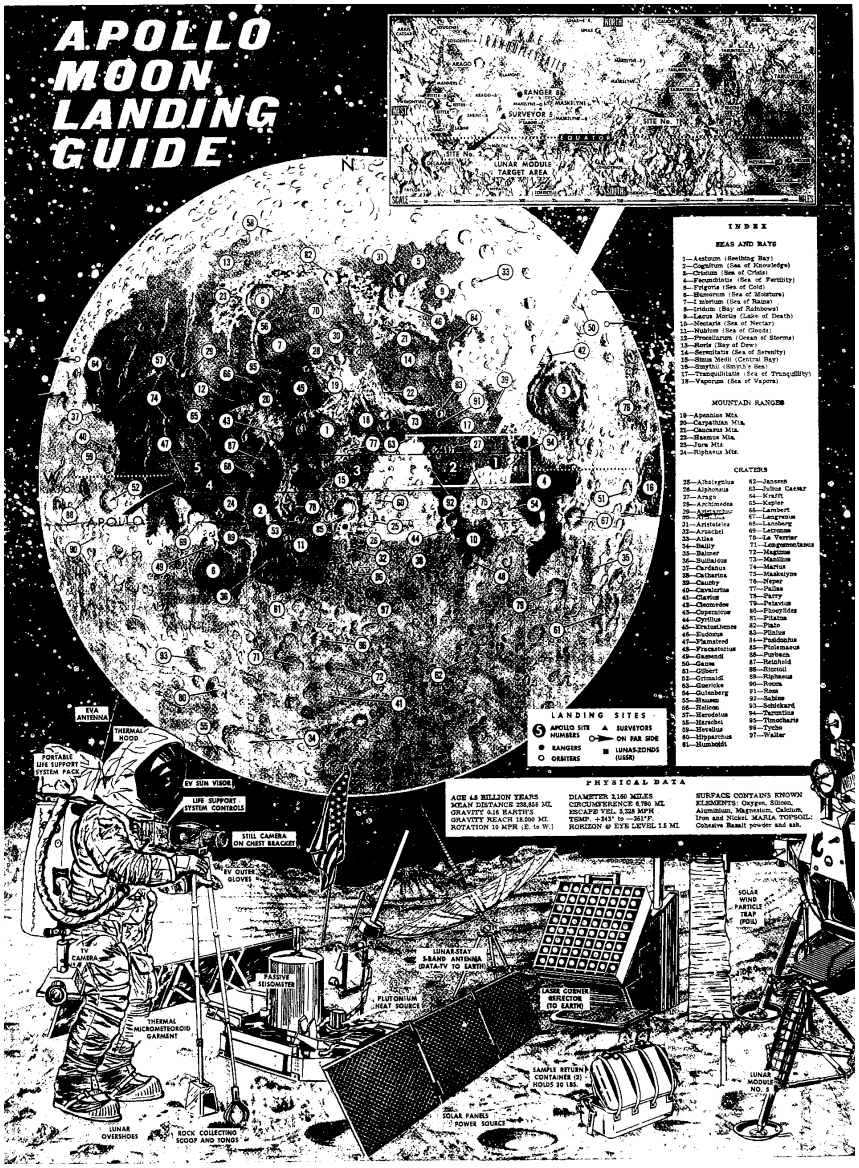


Figure 16. Apollo moon landing guide. 1969, July 22. (The Dominion special project. p. 8)

The *Apollo moon landing guide* (Fig. 16), is from a special insert that was created for *The Dominion*, July 22, 1969. It is an oddly irresistible piece of design that is both confusing and arresting. The key caption "Apollo moon landing guide" is in a typeface suggestive of the futuristic, technological nature of space travel. Moreover, it mimics the typographic style used in the comic books of the 1960s. At a denotative level the design describes the recognised and labelled geographical features of the moon and the scientific equipment deployed in the astronaut's mission.
The illustration's most outstanding aspect is its simultaneous portrayal of the Apollo 11 lunar landing site from three separate viewpoints. Through this construction the composite illustration references the design of the pop culture comic books of that period as well as the exploded diagrams common to science and technology design. The wide angle shot of the whole moon places the viewer on earth looking up in expectation as the Apollo mission unfolds. At the same time the birds-eye view of the landing site aims at simulating the experience of orbiting the moon in the command module. Meanwhile the eye level perspective employed in depicting the landing site places the reader alongside the astronauts as they move about on the lunar surface. The visual effect of these multiple vantage points is both confusing and compelling. It is confusing because the simultaneity creates a surreal image where the moon floats above

its own horizon. Also in trying to communicate so much the image has become cluttered. Strangely this is also what makes the illustration compelling. The experience of viewing the multitude of data is both overwhelming and exciting. For me it is synonymous with days spent delving into *Where's Wally* (Handford, 1987) to search for the illusive little man hidden in a chaos of colour. People love to feel that they have discovered something that is hidden from those less observant. So while this illustration's clutter and multiple perspectives may impede the clear and immediate communication of information, it does not prevent the viewer from being entertained and subsequently drawn into the story being told.

Also deriving from *The Dominion* special insert is the *Lunar landing mission profile* (Fig. 17). In contrast to the former image this is a stylised depiction of the astronauts' mission to and from the moon. The system of visual representation used in this example is rational and scientific. It is rendered in a typical information graphic style which favours simplified forms and a clean, clear layout. At a more subliminal level, the diagram's visual emphasis on going to the moon and back references the mythic archetype termed the 'hero quest' in which a hero departs in search of a boon or blessing with which to enrich society (Campbell, 1949). In returning from their journey to an uncharted territory, and by bringing back geological evidence in the form of moon rocks,

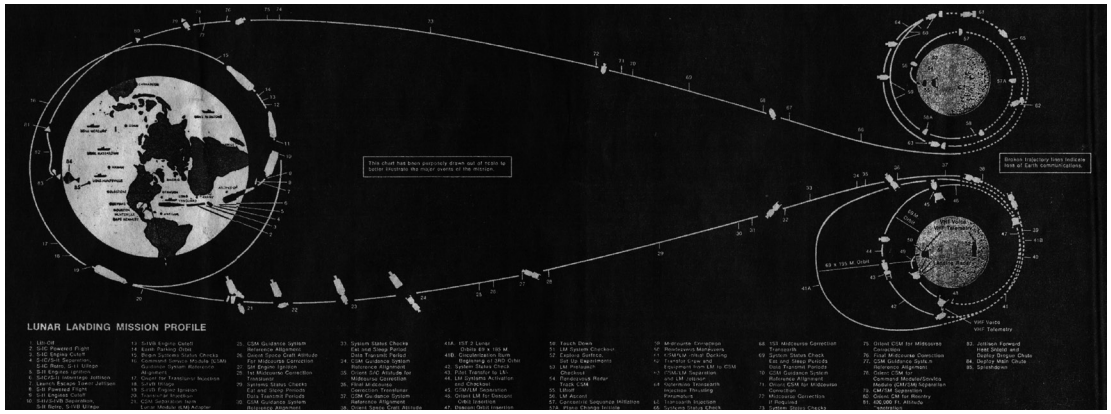


Figure 17. Lunar landing mission profile. 1969, July 22. (Dominion special project. p. 2)

the astronauts of the Apollo 11 mission conform precisely to Campbell's heroic archetype. Thus at a connotative level the diagram's message implies that the moon has been inextricably drawn closer to the earth. This is achieved through the simplicity of the diagrammatic style which, combined with breaking down the journey into stages, makes the enormity of the Apollo mission more comprehensible.

This review of historical and contemporary lunar depictions has resulted in the identification of a number of recurring visual themes. A selection of the more popular and iconic motifs will form the basis of my personal design response. In addition I have determined areas where the design precedents have under-utilised the potential of a given design element or strategy. These gaps will also be addressed in my personal design response.

Design methods

Information graphics

Through researching and analysing the historical and contemporary precedent work a pattern became apparent. Namely that the depiction of lunar knowledge often draws on principles common to information graphics theory to inform the design strategy. Hence I propose that my design treatment of the lunacy myth can be strengthened by infographics theory. I will outline the principles of this theory in the following section.

Infographics theory is concerned with methods for ordering information into a visual form. It is similar to the discipline of astronomy in that it involves creating order out of a chaotic universe of data. One of the strengths of infographics is its ability to engage in alternative methods for communicating complex ideas in a simple way. Infographics is less about turning data into eye candy and more concerned with making information easier to access, interpret, understand and remember.

Tufte (1983) claims that designs displaying complex layers of information should be clear and simple to follow. John Maeda, author of *Laws of simplicity* (2006) states that "simplicity is about subtracting the obvious and adding the meaningful" (Maeda, 2006, p. 89). For Maeda comprehension is achieved through simplicity. What both scholars allude to is the relationship that exists between complex data and the simple distillation of that data, otherwise known as simplexity. One example of simplexity is the Google search engine. With just a search bar and two buttons this engine can access, sort, prioritise and recommend web sites from the entirety of the world wide web. Without the simplicity of the Google interface the complexity of the internet would create an overload of information. Nevertheless, without the complexity, a simple interface would be redundant.

One of the first design groups to implement the simplicty concept was the Isotype Foundation. Conceived in 1925 by Otto Neurath, the isotype system of representation still influences contemporary information design practice. Neurath sought to do away with words to make information easier to understand. Inspired by military battle maps Neurath, in conjunction with Gerd Arntz, established a pictographic system that could be used to convey statistical data. Neurath argued that pictorial statistics were "not only a tool to visualize social facts but also an instrument of democratization, because isotype favoured a generally comprehensible vocabulary instead of a scientific one" (Schuller, 2009, p. 121). The wordless stories resulting from Neurath's pictograms suggest that information graphics are similar to one aspect of myth in that they help us to better understand data, and therefore the world in which we live. Like myth, "diagrams, data graphics, and visual confections have become the language we resort to in this abstract and complex world. They help us understand, create and completely experience reality" (Klanten, 2008, p. 5).

Richard Wurman approaches the problems of deciphering and displaying data slightly differently. His view is that of the confused outsider whose experience of raw data is one of information anxiety. He argues that by categorising data a designer can organise complex and confusing information into structures that people can understand (Wurman, 1996). This user-centred philosophy is supported by Ferdi Van Heerden. Van Heerden claims that "by borrowing from the cultural, emotional, and contemporary world of the viewer, a multi-layered symphony of expression can be created" (Klanten, 2008, p. 7). He further explains that by considering the users' needs first, information can be more compelling and memorable. Nevertheless, applications of simplicity, narrative, clarity and audience theory are redundant if the message is not understood. As Van Heerden puts it, "compositions must ensure comprehension; that is the simple

and elegant mantra in the design of complex data explanations" (Klanten, 2008, p. 8).

The popular and critically successful oversized poster publication *Is not magazine* (Campbell et al., 2006) (Fig. 18) is an example of how education, entertainment and publicly accessible information can work. First published in 2005, the design was printed in a format of 1.5m x 2m and displayed next to bill posters around Melbourne. *Is not magazine* changed the typical contextual placement of journalistic work. As a social experiment it worked in part because it reprised the tactile and visual quality of nineteenth-century advertising. Moreover, it encouraged the dissemination and democratisation of knowledge in a public setting. Such a system is mirrored in the infographics theory of user-centred communications.

Infographics theory is fundamentally about finding ways to make knowledge easier for people to access and subsequently understand. It is concerned with telling the story of information. This user-driven approach to communications is central to the design strategy of this project. The following discussion outlines how findings and strategies drawn from the analysis of the precedent work can accompany this user-focused design method.

Figure 18. Beatles versus stones. Is not magazine. 2006 Located on the streets of Melbourne. (http://magculture.com/)

Research through design

Design process

The design process undertaken in this project is based on the cyclical action research method identified by Cal Swann in his journal article *Action research and the practice of design* (2002). It began with written and visual research which was followed with an analysis of the precedent work. Findings from this process were evaluated and synthesised into a design through mindmapping, sketching and visual refinement. This in turn generated new findings. Following the synthesis and visualisation of ideas a process of evaluation and subsequent rejection, revision and development was undertaken. The process of evaluation often identified new problems requiring further inquiry and exploration which led to a fresh cycle of research, analysis, synthesis and evaluation. The following section lists the specifics of this process with particular emphasis on the visualisation of findings from the analysis of pictorial and written research.

Summary of findings

My scrutiny of the design precedents indicates that several opportunities exist for improving upon the precedent work. Some directions I have pursued are deliberately opposed to established practice, others are extensions on popular visual motifs. When used collectively these strategies will serve to maintain the visual traditions of lunacy as well as advancing new systems of visual representation. Briefly these directions include:

- Submitting design strategy and decisions to Cashford's standard of magnificent madness.
- Merging entertainment with education as a way of making the magnificent madness of the American lunar quest more accessible and more memorable.
- Developing a hybrid system of visual representation that incorporates both scientific and mythic modes of expression.
- Using the symbolic power of colour as a metaphor for magnificent madness.
- Employing media, materials and production methods to reinforce the lunacy myth.
- Representing lunacy through typography.
- Changing the context of the discourse from academia to a more public and popular setting to widen the niche market that currently exists.
- Integrating visual themes and philosophies associated with astronomy and the moon into the design strategy.
- Employing movement as a visual metaphor for lunacy.

These opportunities will now be expanded upon along with their considered application and relevance in the design strategy and process.

Magnificent madness

The polar opposites of enlightenment and delusion are central to the definition of moon madness. This description of lunacy is used as a point of departure for my own work. I propose that by taking inspiration from the magnificently mad content and by evaluating the success or failure of design decisions against Cashford's paradoxical definition of lunacy, this project will be better equipped to create a contemporary rendition of the lunacy myth. The following section addresses the various ways this has been evaluated and strategically implemented in my design process.

Entertainment and education

The practice of integrating entertainment with education is inherent in several of the case studies. Nevertheless, an opportunity exists in this project to take this approach even further. In her book entitled *Artful science* (1994) Barbara Stafford discusses how Enlightenment visual education methods deliberately draw on our need to be entertained. She argues that leisure and learning were once one and the same, thus implying that a return to such a model is a more effective means to pass on knowledge to the target audience.

Making a design entertaining typically involves an emotional appeal. In *Defining visual rhetoric* (2004), Charles Hill claims that emotional messages can be powerfully persuasive, but warns that users can feel manipulated if the emotional catalyst is shallow and meaningless (Helmers & Hill, 2004). Thus any adaption of the entertainment model of visual education should consider including a rational infrastructure beneath the emotional hook. Micki Breitenstein puts it another way. "People respond to visually engaging design, but they can get easily lost if the design isn't well organized. There are benefits to the dictatorial linear structure. People need both: the comfort of someone telling them where to go next, but the attraction of multilevel visuals" (Baer, 2008, p. 17). Based on these assertions I maintain that the adoption of entertainment in the presentation of information is an effective means to engage the viewer.

Figure 19. Utopian dream of man in space juxtaposed with human skull. Ryan Shields, 2010.

To test this hypothesis several steps were taken. The first was to select engaging content, both in an immediate and a lasting sense. My approach in gathering the material was principally that of a monomaniacal moon maniac. In addition to selecting the most succinct passages from De Groot's text I collated all manner of lunar facts regardless of their status as astronomical data, historical account, myth or trivia. This inclusive approach helped establish a literary framework which informed the graphic component of the project.

Visually I sought to entertain and engage the audience by challenging their preconceptions about the space race through the use of iconic photographs

loaded with symbolic, and in most cases historic, significance. By layering and juxtaposing scientific and popular cultural motifs a contradictory tension was created that is reminiscent of De Groot's historical account of the moon race. This tension effectively subverted the original symbolism of the photographs, resulting in an entirely new set of meanings. Take for example the iconic image of an astronaut floating above the earth (Fig. 19). Above this celestial utopian dream is a skull, intentionally placed so as to change the meaning of the first image by alerting viewers to the deadly human cost of realising space travel. Other contrasting iconic images include the mushroom cloud of an atomic bomb overlaid with the image of an Apollo rocket in flight. These, when placed together, signify the military initiative of the space program. Another pictorial pairing is the glamorised all American heroes of the space race and the 'tiny tin can' they conquered the heavens with. Beside these images I have inserted a photo of the Apollo 11 astronauts parading beneath an image of Kennedy, whose death during a similar cavalcade was the ongoing justification for the American lunar quest. Adjacent to this visual juxtaposition are photographs representing the disparity between the protesting poor and the bureaucratic elite who are depicted looking to the moon instead of to earthly problems. To symbolise the conflict between the heroism and waste of the American lunar quest, an image of man on the moon is contrasted with the magnificent desolation of that site. Next to those images is a comparison between the microscopic world and earth, which was inspired by Ray and Charles Eames short film *Powers of 10* (2010). These contrasting photographs signify how travelling to the moon gave mankind fresh insight into the value of the planet and the plethora of life that exists here. Adjacent to this I convey the transmogrifying power of the moon through an image of a wolf's head placed beneath a photograph of the moon's dark side.

Each of these pictorial pairings deliberately juxtaposes carefully selected icons to emphasise the disparity between the widely publicised romance and fantasy of manned flight to the moon with the reality, madness and cost of such an endeavour. While the juxtaposition may initially appear ambiguous, I justify this ambiguity as crucial as it appeals to the audience's desire to feel good about decoding the visual puzzle inherent within the design. This practise is common in advertising and is known as creating 'a smile in the mind'. Beryl McAlhone and David Stuart (1996) who coined the phrase argue that such use of intrigue and reward is the most effective way to attract the attention of time-short audiences. The viewer is seduced by the enigmatic imagery into committing their gaze to the decoding of the visual communication.

Another approach in making information entertaining has been to mimic the technique of the *Apollo moon landing guide* (Fig. 16). This design draws on two methods to captivate its audience. The first is to initially overwhelm the viewer with a sea of data. Its wealth of visual activity captures the viewer's attention and demands that it be studied. This tactic has been incorporated into my design. DeGroot's narrative and lunar facts fill the background and are intended to evoke the stars of the night sky as well as symbolising moon obsession. Furthermore, the scale of the design (2mx2m) is intended to evoke the immense undertaking in flying to the moon, and the manpower involved in realising that ambition. Subsequently the sense of being overwhelmed by the immensity of the design conveys the massive scale of the American lunar quest. The second tactic that *The Apollo moon landing guide* (Fig. 16) employs to capture its audience is to reward the persistent viewer with knowledge about the moon landing that cannot be gleaned from a casual glance. The design created for this project rewards careful study in a similar manner. By deliberately deploying a small font size to communicate unexpected and extraordinary lunar facts, and by playfully using smaller diagrams and photographs, I appeal to the target audience's interest in bite sized data and unusual facts.

Integrating myth and science

My analysis of the design precedents reveals that the dominant systems for visually representing the moon are typically founded on scientific and, or, mythic philosophies. Scientific investigation of the moon usually employs clinical, rational and observational methods to ascertain the facts about its structure, position in space, atmosphere and so on. Visually this data is conveyed through the mode of information graphics. In contradistinction lunar myths concern the stories, symbols and metaphors correlating with the moon. The mode of representation for myth is typically more illustrative and embellished.

Figure 20. Buzz Aldrin on the moon. NASA. 1969. (http://grin.hq.nasa.gov/)

Figure 21. The full moon reflects 90% more light than a quarter moon. Ryan Shields. 2010.

In his book entitled *The hedgehog, the fox and the magisters pox* (2003) Stephen Jay Gould refers to a case study where two acclaimed Renaissance scholars did not separate fact from fiction. Instead they sought to represent the materiality and spirituality of human experience as inextricably interlinked (Gould, 2003). Their case hinged on the notion that the fusion of myth and science in a singular discussion provides a far more complete view of the world than either alone would provide. Barry Powell states that "the strength of science lies in defining ideas precisely and treating them within strictly controlled guidelines. The power of humanistic studies, on the other hand, lies in their concern with the capacity of humans, as symbol-making beings, to create alternative worlds" (Powell, 2009, p. 666). This project seeks to present a particular picture of lunacy that incorporates the strengths of both myth and science.

Evidence of this in the design process is demonstrated in the juxtaposition and hierarchical layering of iconic photographs alongside facts, figures and diagrams describing scientific data. The first layer is photographic which is primarily symbolic and mythic in nature (Fig. 20). This layer is intended to create a visceral, emotional link with the audience. The secondary layer represents De Groot's description of the lunacy as synonymous with the American lunar quest. De Groot's scholarly investigation and narrative style appeals to both a scientific and a mythic mindset. Thus this layer is concerned with scientific facts, figures and diagrams (Fig. 21). The graphic interpretations of complex lunar data have been designed with simplicity in mind. This is an approach favoured by Maeda and Tufte when representing data in visual form as it makes information easier to grasp. In a similar manner to *Earth* (Fig. 2) the layering of mythic and scientific detail serves to engage a wider audience with the lunacy myth as it appeals to both the casual viewer and those seeking to lose themselves in an overload of lunacy lore. Furthermore the layering of emotive photography alongside scientific diagrams addresses Charles Hill's recommendation of imbuing emotionally charged messages with intellectual depth (Helmers & Hill, 2004).

Figure 22. The colours of lunacy. Ryan Shields. 2010.

Colour symbolism

Historically most depictions of the moon are devoid of colour. The key reason for the deficit of colour in lunar imagery is the moon's typical association with the night sky; a ball of white on a sea of black. As the moon is typically perceived and represented in popular culture as achromatic, the addition of colour could be problematic despite its use in mythic modes of representation and select scientific discourses. Nevertheless, the scarcity of colour in the precedent work creates an opportunity for exploration that is hard to ignore. Furthermore, as colour imbues an image with life and vibrancy, and is such a powerful and persuasive method for conveying meaning and creating structure, I contend that it should be fully incorporated into the design strategy.

The first colour chosen for integration into the design strategy is yellow. In her book *Colors* (2006), Anne Varichon describes yellow as the most paradoxical colour. Varichon asserts that this hue can represent abundance, sunlight and warmth as well as warning, cowardice and treason. The contrary qualities attributed to this colour mean that it is a neat fit for symbolising the moon, as it too is marked by paradox; the full and new moon signifying light and dark. Varichon also notes that, beginning from the thirteenth century, yellow "became the color of madness, so much so that houses were 'saffroned' as a sign of dishonour" (Varichon, 2006, p. 70). In this project I have sought to utilise the symbolic value of yellow by subverting its benevolent qualities in favour of its less familiar association with madness. Thus my symbolic use of the colour yellow is similar to that employed by Charlotte Perkins Gilman in her short story entitled *The Yellow Wallpaper* (1892). In this work Gilman tells of a woman confined to her room and driven mad by its yellow walls. By replacing her reader's congenial expectation of yellow with that of malignant terror she subverts the reader's expectations which makes the newfound horror associated with yellow more intense.

In addition to yellow I have selected the colours black and turquoise for use in the design. Turquoise was chosen because in its paler shades it is representative of the colour of the full moon in the night sky. At a symbolic level this hue speaks of the moon's influence upon life on earth. In particular, it alludes to lunar control over the ebb and flow of the ocean's tides. Moreover, the contrast of yellow with turquoise resonates with the colour schemes frequently used to depict a psychedelic state of mind. Black is undoubtedly the colour of space, as evidenced by its frequent use in the precedent work and its dominant presence in the night sky. Furthermore, it is a colour that Varichon claims "arouses a universal fear" (Varichon, 2006, p. 219). Consequently it was an obvious choice to signify the correlation between the celestial moon and the unease of madness. Moreover, when black is combined with turquoise the combination is popularly associated with a forboding sense of madness as evidenced in the promotional poster for *Underworld* (Fig. 11).

In addition to its symbolic use, colour has been used as an ordering device. By colour matching key photographs and typography with yellow or turquoise I am able to draw together various sections of the design into a single visual entity. This approach employs a principle of infographics theory, namely, that linking aspects of a design through the use of colour creates cohesion and order (Baer, 2008).

Figure 23. Detail of marbelled texture and vector graphics. Ryan Shields. 2010.

Figure 24. Surface of the moon. NASA - Apollo 15. 1972. (http://history.nasa.gov/ap15fj/a15images.htm)

Figure 25. Fourth blot of the Rorschach inkblot test. Hermann Rorschach. 1921. (http://www.test-de-rorschach.com.ar/en/inkblots.htm)

Production methods

My study of the precedent work has also shown that technologies of visual production influence the way in which knowledge is understood and subsequently apprehended. Technology is influential in establishing the modality or degree of truth inherent in an image. Furthermore, the way an image is created carries with it a set of semiotic codes that are intended to transfer meaning from the image to the viewer. Using digital tools, for example, imbues an image with crisp, clean, technological connotations. In contradistinction, images created using analogue production are imbued with human, natural and organic associations.

These findings have been taken into account during the design process and have been implemented in the project title design. The headline is constructed by juxtaposing mottled texture against crisp, computer generated vector lines (Fig. 23). The texture was created by hand using marbling inks and is intended to symbolise the scarred surface of the moon (Fig. 24). Furthermore the process subtly references the Rorschach ink blots tests (Fig. 25) which were developed to detect mental disorder in patients, and which gained popularity during the 1960s. This fusion of digital and analogue production methods mirrors the human accomplishment of the moon landings and the technological prowess requisite for achieving such a feat. Moreover, it appeals to the target audience's aesthetic preference which, based on Boyle's assertions, is a balance between analogue and digital systems of visual production.

Figure 26. Magnificent madness typeface. Ryan Shields. 2010.

Figure 27. Otis rush. By Wes Wilson. 1967. (Massey Universities Fitzgerald Psychedelic Poster Collection)

Figure 28. The young rascals. By Wes Wilson. 1967. (Massey Universities Fitzgerald Psychedelic Poster Collection)

Typography

As with the design element colour, typography is a somewhat neglected means for communicating lunar knowledge. Typography has the ability to convey meaning through varying weight, texture, printing methods, and style. Except for few notable exceptions, the typographic elements associated with lunar representation are typically little more than footnotes to other graphic elements. One speculation is that infographics practice favours the image over the word. This is because one of its founding principles, as expounded by the Isotype Foundation, favours simplified icons over words as instruments for communicating information. Consequently, in data driven communications, type has been under utilised in the visual transference of ideas. I maintain that the lack of compelling, engaging and informative typographic elements in the depiction of the moon overlooks the powerful communicative potential of letterforms.

To address this I created a typeface for the project that was suitably reflective of the magnificent madness associated with the American lunar quest. The letters were initially sketched out by hand and then crafted using vector graphics. The curved, rounded type is deliberately designed to echo and symbolise the spherical shape of the moon and its cratered surface. Each letter-form is unique. In morphing into and twisting around the companion letter forms, the design is intended to signify the chaotic madness of the American lunar quest. Furthermore, the typographic style references the psychedelic posters of the 1960s (Figs. 27 & 28). In doing so it draws on the social activism and protest that drove the subversive and subculture design of the period. This historical reference to protest fits well with De Groot's account of the American lunar quest, which re-evaluates the accepted history of the Apollo moon landings. Additionally, by employing a motif associated with a psychedelic state of mind to represent aspects of the American lunar quest, I make a visual connection between that event and the lunacy myth.

Complementing the typography of the headings is the font *Sauna* which the body copy is set in. It is a

legible and readable typeface; the rounded style of the letterforms reflects the curved moon and it is more approachable than a traditional serif or gothic font. By lightening the tint of the typeface the text is softened so that it speaks to rather than shouts at the viewer.

Changing the context

With a few exceptions most discourse concerning the moon, lunacy and the American lunar quest is scholarly. The precedent work, both textual and pictorial, is typically found in medical and scientific journals or literature devoted to discussing the moon and the solar system. Because of the disciplinary focus of the material relating to the moon I contend that a significant sector of the public is excluded from the conversation. Moreover, the academic stereotype commonly attached to the pursuit of astronomy means that measures should be taken to 'popularise' knowledge about the moon. This popular treatment of lunacy is argued as an opportunity for adding to the way in which lunar knowledge is discussed and mediated.

I argue that in contradistinction to the usual format of a book, a poster makes information more readily accessible, open and inviting to the target audience. The medium of the poster is a popular means to inform, promote and persuade. It is eye-catching, low cost, and is democratic in that it is easily and readily accessed by a wide audience. It can be a powerful

Figure 29. Project mercury astronauts treated with a grainy effect. Ryan Shields, 2010.

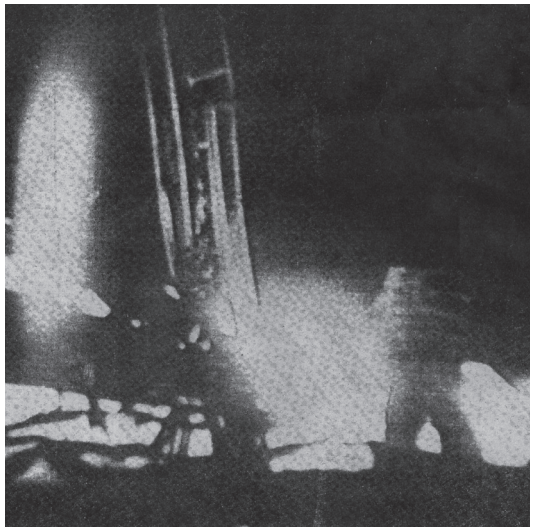


Figure 30. Mankind's first steps on the moon. NASA. 1969. (The Dominion special project. p. 16)

force in creating mythic archetypes and shaping social behaviour. One example of this is the plethora of posters produced by the counter culture artists of the 1960s and the subsequent societal changes that underground movement wrought. The design output of this project is created in response to evaluating the visual effectiveness of these factors. It is constructed as a large scale, open-air, exhibit style poster similar to the format of *Is not magazine* (Fig. 18). Such a poster is assessed as enabling the proactive dissemination of knowledge and sparking an interest in a topic somewhat out of fashion. This function is counter to the passive distribution of information in books, journals and on the internet, all of which are only useful to those with an established interest in the moon and lunacy. As the target audience is assumedly ignorant of a number of factors relating to the magnificent madness of the American lunar quest, a poster is one way of reconnecting them to this contemporary lunacy archetype.

A second component in changing the context was to make the visual language more recognisable. This approach resembles the socially driven model of visual communication established by Neurath. To achieve this end, selected photographs were treated with a filter that evokes the ghostly, grainy

Figure 31. Man is on the moon. Front page of The Evening Post, July 21 1969.

Figure 32. Section of composition inspired by the design of 1960s newspaper. Ryan Shields. 2010.

film footage of mankind's iconic first steps on the moon (Figs 29 & 30). This technique serves as a visual device for recognising and making the connection between man stepping onto the moon and the rest of the American lunar quest.

Another approach used in constructing a more democratic and accessible design has been to draw inspiration from, and pay homage to, the design of 1960s newspapers. The newspaper was the popular, affordable and accessible medium through which the American lunar quest was reported in the 1960s (Fig. 31) and is associated with the dissemination of the daily news. Furthermore, its design makes use of an underlying grid for fast production turnaround. This grid structure filled with pull quotes, long thin columns, headlines and photographic illustrations is a key device for ordering the composition of De Groot's narrative (Fig. 32). By mirroring the composition of the newspaper, the poster design emulates the popular appeal and sense of immediacy inherent in a daily news bulletin. In addition to this design format, the poster references the capacity of the broadsheet to connect humans at a local and a global level. Although ephemeral, it unites us in both our glory and our tragedy. This quality fits well with the duality of enlightenment and delusion central to the myth of lunacy as well as the global nature of the space race.

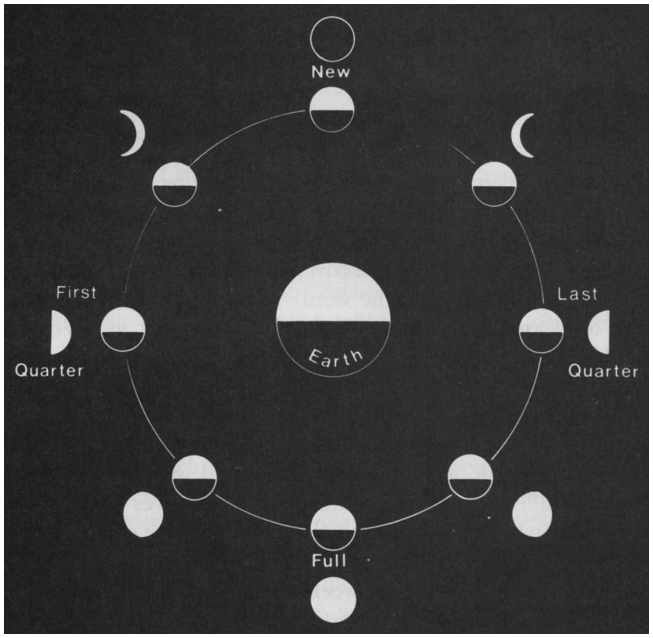


Figure 33. The phases of the moon. Griffith Observatory. 1983. (Echoes of the ancient skies. p. 14)

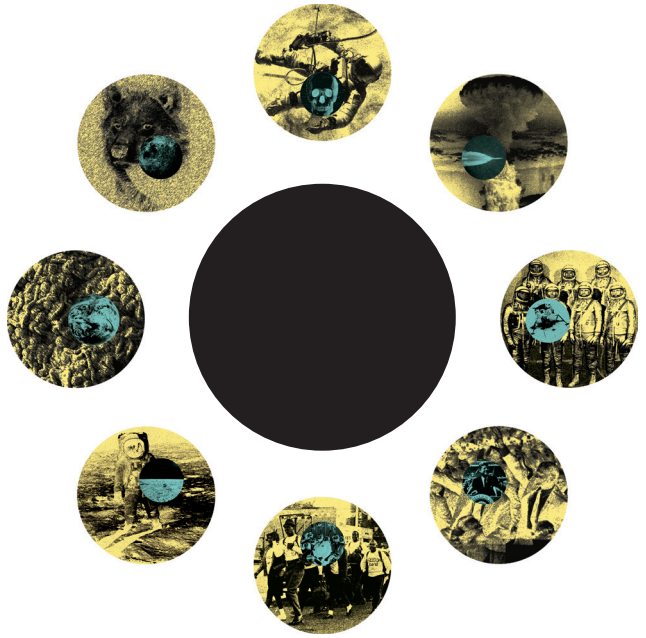


Figure 34. Mimicking the composition of the lunar phases diagram. Ryan Shields. 2010.

Astronomical visual themes

Another exemplary approach that the precedent work has established is the successful use of astronomical philosophies and visual themes as models for design strategy. Take for example the use of geometric principles which have consistently been used for their symbolic value if not their scientific value. I contend that a key benefit of a design strategy that juxtaposes the philosophy of its content with design practice is a more fully integrated and meaningful communication.

To test this hypothesis I correlated the design's visual structure with the eight phases of the lunar cycle (Figs 33 & 34). These orbiting motifs are prevalent in depictions of the moon and have endured from the Enlightenment through to the present day. Their use here deliberately draws on that well-established visual system. By appropriating the visual form of the orbiting lunar phases my design gains scientific authority without resorting to astronomical data and conforms to the technique employed by both Berens and Page in their popular depictions of astronomical phenomena (Figs 2 & 5). Through my practice-based research these orbiting spheres spawned an obsession for all things round which resulted in the intentional restriction of photos and graphics to fit the circular form. This use of simplification and repetition is an approach favoured by Maeda as it makes it easier for the audience to follow and grasp information.

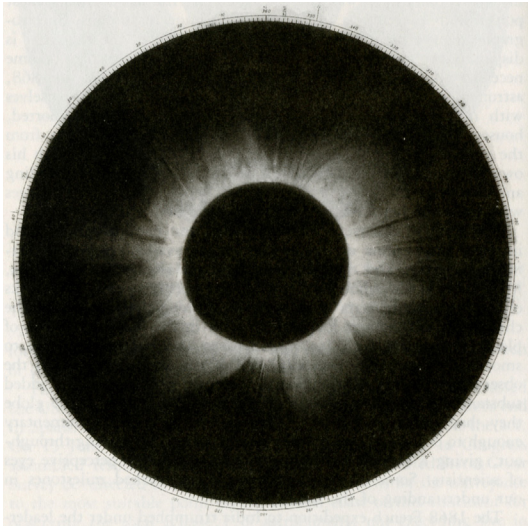


Figure 35. Solar eclipse. Lord Lindsay's assistant, Mr Davis. 1871. (Eclipse, p. 80)

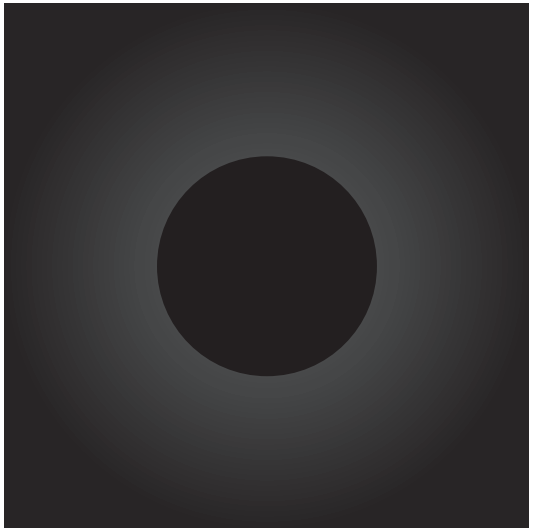


Figure 36. Simulating a solar eclipse as well as the new and full moon. Ryan Shields. 2010.

Another astronomically inspired method for depicting lunacy has been to simulate the experience of a solar eclipse (Figs. 35 & 36). Just as the *Apollo moon landing guide* (Fig. 16) used visual simulation to entice its audience, the re-creation of a solar eclipse aims to impart some viewers with the lunacy the ancient Peruvians felt on sighting a solar eclipse (Fig. 9). In addition to invoking the madness brought about by a solar eclipse, the lunar sphere is depicted at the new moon as a black circular void. Representing the moon this way, as opposed to its typical depiction as full and bright, draws attention to its malevolent influence on the individual and collective minds of mankind. Similar to the subversion of the colour yellow, this acts as a catalyst for the audience to reevaluate their perception of the moon and its relationship to lunacy. Additionally, when the pale heading is lain over the black sphere the design references the dual nature of the moon's phases at both new and full. This practice of representing the moon in simultaneously opposed states was common in ancient Egyptian lunar depictions as it "better described the lunar symbol than either image alone" (Wilkinson, 1994, p. 130).

The polarity of new and full moon has also been employed as an intentional pictorial and compositional device. This is evidenced by the inversion of colour values in the juxtaposed images discussed earlier (Fig. 34). By inverting either the upper or lower image, an intriguing and unsettling effect is created which encourages the viewer to adjust their preconceptions about photographs being truthful representations of the American lunar quest. Furthermore, by forcing the eye to constantly alternate between normal and polarised images it is intended that the audience will experience something akin to an optical meltdown which imparts them with the visual sensation of madness. Polarity is also found in the balance and symmetry of the graphic components which are employed to signify magnificent madness. On one

level this compositional device operates to signify enlightenment and order. At another it is symbolic of a monomaniacal and compulsive obsession for structure and suggests a mind driven mad by details.

The deliberate appropriation of the visual forms associated with astrological horoscopes is another means by which astronomy has influenced this design. The belief in the macrocosm influencing the microcosm is central to the myth of lunacy, and consequently deserves inclusion in its visual representation. This aspect of the design subtly borrows visual motifs from Galileo's horoscope (Figs. 37 & 38) to reference the belief system that his astrological forecast signifies. The use of interlocking circular forms to connect the various aspects of the design conveys the idea that each part of the magnificent madness of the American lunar quest is in a tightly woven relationship with another. Through this strategy the design references Levi-Strauss' notion that the interconnection of archetypes is fundamental to the creation and sustenance of myth.

Movement

The precedent work is evidence that one of the methods for depicting madness is movement. The engravers of the historical works (Figs. 8 & 9) employed physical movement to represent people driven mad by the moon, while the poster *Moon*

Figure 37. A horoscope. Galileo. The Planets, p. 104)

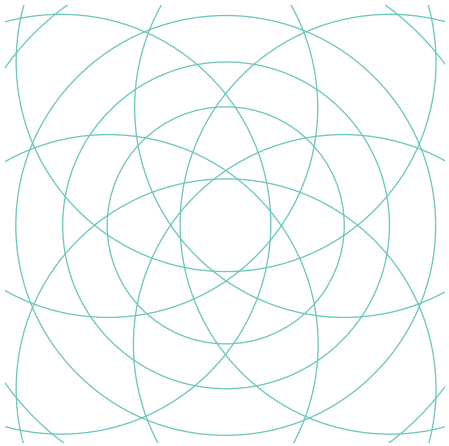


Figure 38. Imitating the visual form of the horoscope. Ryan Shields. 2010.

(Fig. 10) employs an asymmetrical composition and optically expanding and subtracting concentric rings to imply motion. In my design the use of movement as a signifier of madness is achieved through scale and composition. By being too large to be both readable and viewable in its entirety, the audience must choose between stepping back and seeing the whole design or coming closer and inspecting its finer details. By forcing the viewer to alter their body position from near to far, and from to tippy-toe to crouched, left to right, I impart him or her with a type of madness and obsession similar to what they are reading about.

Another way of creating movement in the design has been to encourage the movement of the viewer's eye. This has been achieved by developing a variety of visual anchors across the composition. These components keep the eye in a constant state of activity. This use of the wandering, restless gaze is the manner in which I have elected to guide the audience as they browse the poster. With no clear beginning or end to the design the viewer is allowed the freedom to pick and choose points that interest them without feeling obliged to read the poster in its entirety. This approach to presenting information takes into consideration the time-poor nature of the target audience as they pass the poster in the street. Moreover, such an open, eclectic and almost chaotic viewing is preferred over a dictatorial and linear one as it better evokes the theme of magnificent madness.

Conclusion

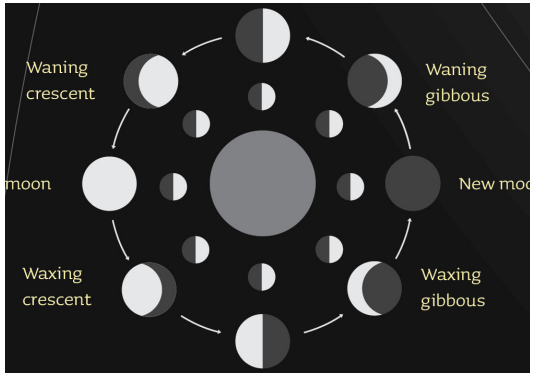
In this project I explored various means for depicting both the scientific rationalism and the lunacy characterising the American lunar quest. I investigated the myth of lunacy, the use of signifying visual codes in conveying that myth, and the communicative potential of infographics in raising awareness about the magnificent madness that was the American lunar quest.

My consequent design is informed by precedent work from the Enlightenment, Modern and Postmodern periods as well as the application of practice-based knowledge. Cashford's definition of magnificent madness was key to the creation and evaluation of the design. Her paradoxical definition of madness as encompassing enlightenment and delusion allowed me to fuse conflicting perspectives such as chaos and order, digital and analogue production, myth and science, entertainment and education. Furthermore, using magnificent madness as a benchmark informed the development of a psychedelic typeface, justified the subversion of colour symbolism and the obsessive use of symmetry, and prompted consideration of the use of movement to signify madness. In addition to an approach directed by lunacy I integrated visual themes and philosophies associated with astronomy and the moon into the design strategy. I maintain that used collectively these processes construct a unique format for depicting the magnificent madness of the American lunar quest.

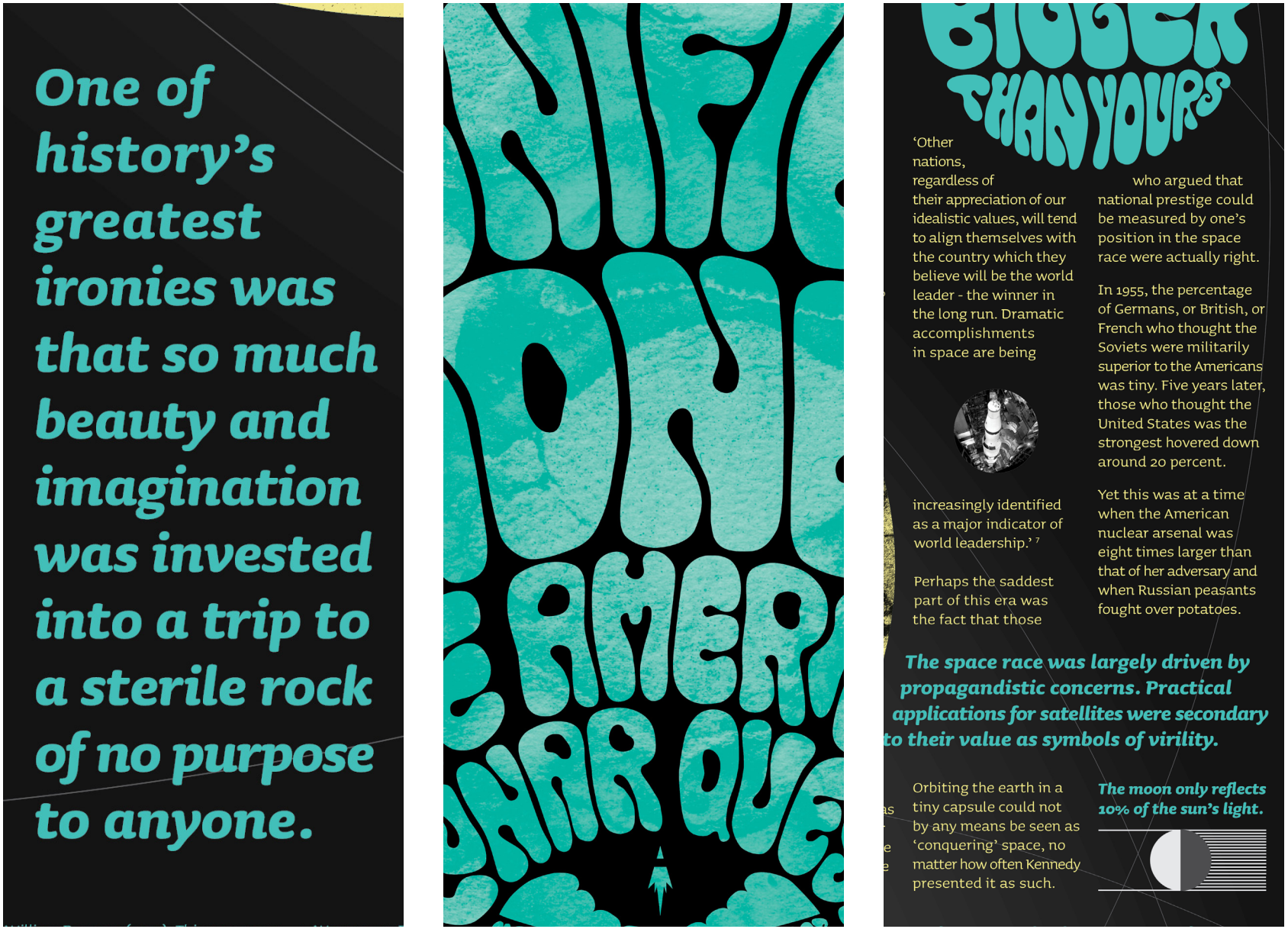
The wider significance of this thesis is threefold. Firstly, the processes involved in research based design have developed an ideal system for analysing and creating visual communications that are both story led and data driven. Consequently this project has validated the communicative role of myth in describing the world and its phenomena. Secondly, by repackaging the lunacy myth with popular appeal in mind a wider audience has been introduced to the magnificent madness of the American lunar quest. Thirdly, by scrutinising the visual history of the lunacy archetype and through practice-based research this project has served to highlight how designers can take on the role of mythmakers by perpetuating or departing from mythic archetypes

Finished design

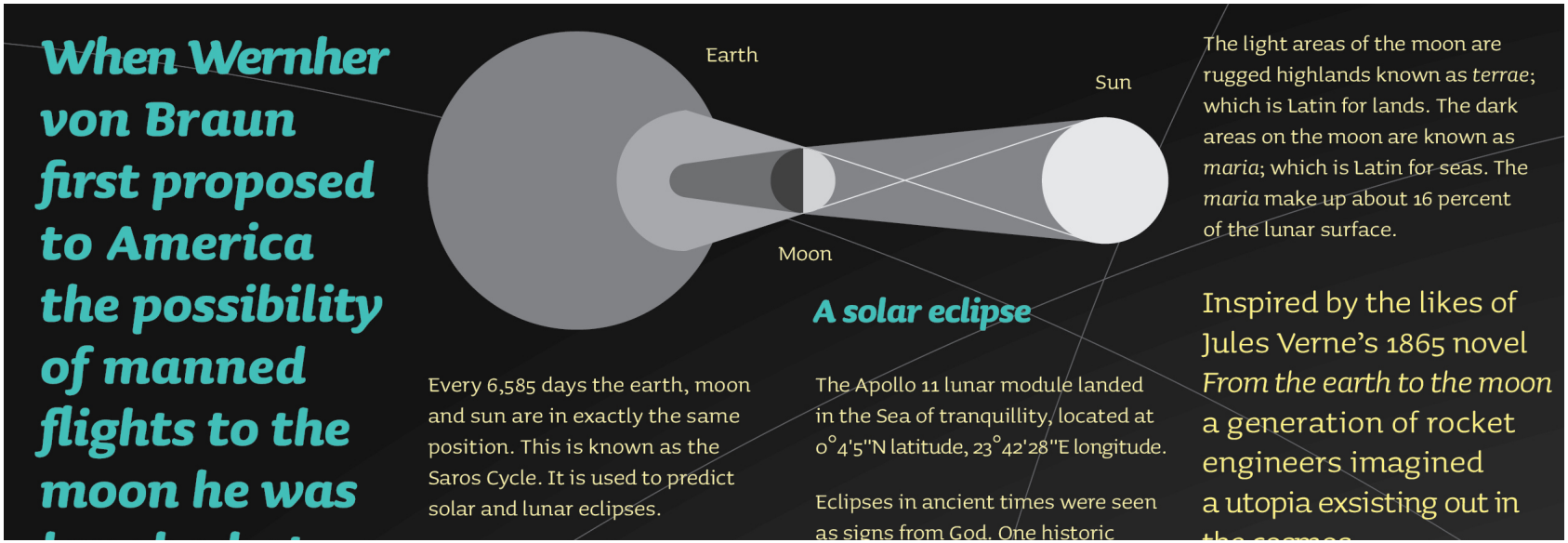
Figure 39. Magnificent madness, the American lunar quest. Poster in context. Ryan Shields. 2011.

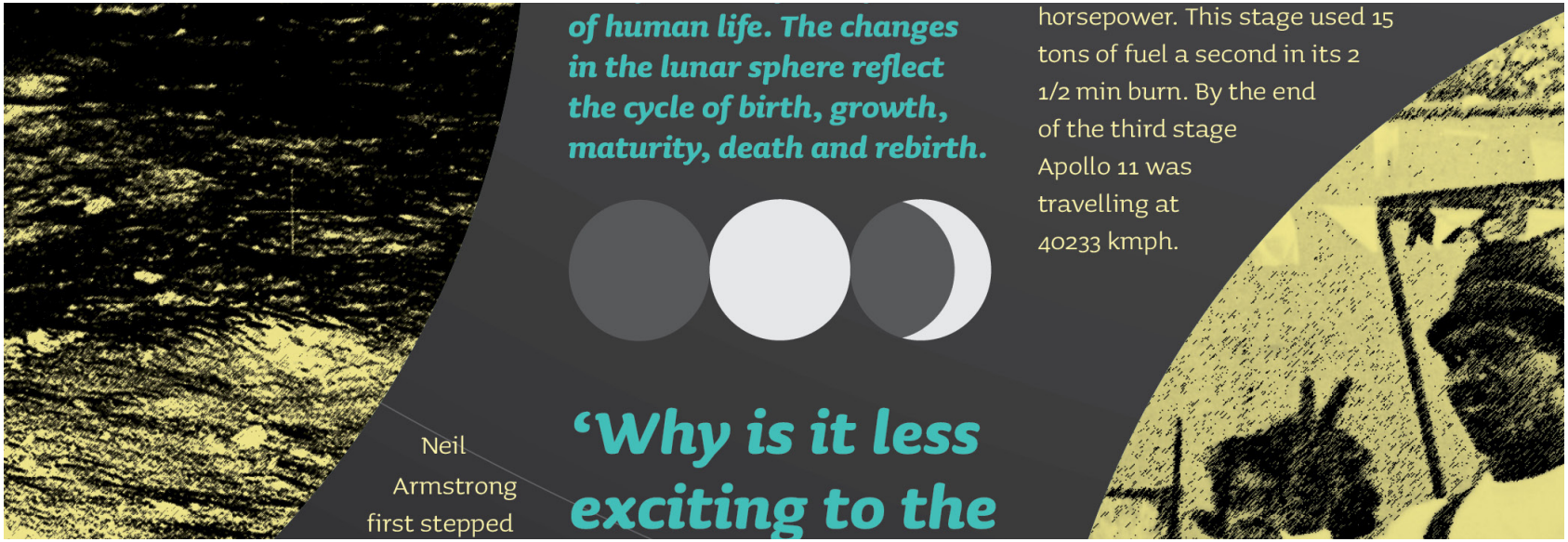


Figures 40, 41, 42, 43. Magnificent madness, the American lunar quest. Poster Details. Ryan Shields. 2011.



Figures 44, 45 46. Magnificent madness, the American lunar quest. Poster Details. Ryan Shields. 2011.





Figures 47, 48. Magnificent madness, the American lunar quest. Poster Details. Ryan Shields. 2011.

Appendix

Workbook

Visual research

Digital version of thesis

Finished design

Located on CD accompanying the printed thesis.

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Figure 1. Avri potabilis chimice praeparati. From *An illustrated encyclopaedia of traditional symbols.* (p. 2). Cooper, J. C. (1978). London: Thames and Hudson.

Figure 2. Earth. From *Under the Milky Way.* Ross Berens. (2010). Retrieved January 19, 2010, from http://cargocollective.com/rossberens#92805/under-the-milky-way

Figure 3. The phases of the moon. From *Echoes of the ancient skies: The astronomy of lost civilizations.* (p. 14) Krupp, E. C. (1983). New York: Harper & Row.

Figure 4. An explanation of eclipses. From *Album of science: From Leonardo to Lavoisier 1450-1800.* (p. 59). Cohen, I. B. (1980). New York: Charles Scribner's Sons.

Figure 5. Eclipse. From *International year of astronomy 2009 posters.* Simon Page. (2009). Retrieved January 19, 2010, from http://simoncpage.co.uk/blog/2009/10/01/international-year-of-astronomy-2009-posters/

Figure 6. Tabula selenographica. From *Album of science: From Leonardo to Lavoisier 1450-1800.* (p. 57). Cohen, I. B. (1980). New York: Charles Scribner's Sons.

Figure 7. Geologic maps of the changing surface of the moon. From *Atlas of the moon.* (p. 52). Rükl, A., & Rackham, T. W. (1990). London: Hamlyn.

Figure 8. The moon on the heads of women. From *The Moon: Myth and image.* (p. 206). Cashford, J. (2003). London: Cassell.

Figure 9. The Peruvian response to a solar eclipse. From *Superstitions.* (p. 67). Haining, P. (1979). London: Sidgwick & Jackson.

Figure 10. Moon. From *The internet movie database.* (2010). Retrieved January 21, 2010 from http://www.imdb.com/title/tt1182345/

Figure 11. Underworld. From *Internet movie poster awards.* (2010). Retrieved February 22, 2010 from http://www.impawards.com/2003/underworld.html

Figure 12. Man is on the moon. *From The Evening Post.* (p. 1). (1969, July 21).

Figure 13. First steps on the moon. From *The Dominion special project.* (p. 16). (1969, July 22).

Figure 14. Earthrise. From *Great images in NASA.* (2009). Retrieved April 18, 2009, from http://grin.hq.nasa.gov/index.html

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Massey University
COLLEGE OF CREATIVE ARTS

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