

## Citing the Saucers: Astronomy, UFOs and a persistence of vision

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**Abstract.** This paper consists of two parallel and interweaving investigations regarding the UFO phenomenon and its origins with respect to observational astronomy. First, as a young child, I was fascinated with astronomy and would spend many hours with my toy telescope, viewing blurred images of the night sky. I also held a deep belief in UFOs and was committed to seeing and recording a flying saucer for myself. This led me to fabricate my own UFO photographs and from these I developed a critical relationship with photography as a means of documentation and as a medium of illusionary projection. This paper is therefore partly personal and reflexive.

The second thread investigates the advent of the UFO phenomenon as a consequence of nineteenth and early twentieth century developments in observational astronomy, and the speculative theories regarding life on Mars that emerged during this period. I will be considering the work of Giovanni Schiaparelli, Percival Lowell and the writings of Carl Jung. I will be arguing that the primary force that led towards a belief in flying saucers emerged from the speculations and misinterpretations of certain astronomical observations, together with a desire to project upon that which was observed, rather than to see that which was there.

One might say that immensity is a philosophical category of daydream. Daydream undoubtedly feeds on all kinds of sights, but through a sort of natural inclination, it contemplates grandeur. And this contemplation produces an attitude that is so special, an inner state that is so unlike any other, that the daydream transports the dreamer outside the immediate world to a world that bears the mark of infinity.<sup>1</sup>

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<sup>1</sup> Gaston Bachelard, *The Poetics of Space*, trans. Maria Jolas, (Boston: Beacon Press, reprinted 1994 [1969]), p. 183.

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As a primary school-aged child I was fascinated by astronomy and the phenomenon of UFOs. I would buy or borrow from libraries many books and journals which purported to investigate and document these mysterious spaceships which were visiting our world. I also had accumulated a substantial collection of articles from trashy publications such as the *Australasian Post* and *Pix* magazine.

Reading the stories and eyewitness accounts was always intriguing, but what was particularly fascinating were the photographic images of flying saucers. Usually these images were of poor quality and lacking any credible detail. Sometimes they were enlarged to the point of abstraction. Like Thomas, the photographer played by David Hemmings in Michelangelo Antonioni's *Blow Up*, I would study these blurred and grainy reproductions through my magnifying glass, trying to discern the obscure alien shapes and structures, wanting so badly to see in these images what they, in fact, failed to provide. Like tightly-wrapped presents under a Christmas tree these veiled and obscure depictions inspired my imagination and a commitment to see a UFO for myself.

What I wanted more than anything else was to not only observe but to document a UFO, and to this end I began to carry a loaded camera with me wherever I went. It was an old folding-style medium format camera with a small bellow. I also carried a compass and a note pad and I would keep an eye on the skies throughout as much of the day as was possible.

My family were most tolerant of my obsession and would often humour me and I would humour them in return, because I knew that I was ready to record any fleeting vessel and that the last laugh would be on them—it was just a matter of time! My reasoning was that if there were even half as many alien visitors to our world as my extensive readings suggested, then surely there must be UFOs passing overhead at sometime in any given week or day. The real problem was that disbelieving adults were so caught up in focusing on their day-to-day activities that they hardly ever looked upwards and were therefore most unlikely to see for themselves. 'You don't look at the sky enough' I would tell my mother; and so began my quest, in the belief that, with commitment, I would eventually observe a UFO for myself and make good a photographic record. After school and on weekends I would sit on the apex of our roof for hours at a time with my note book and pen, compass and binoculars and my loaded camera held firmly in hand. Sometimes I was joined by my friend Robert, but mostly I was on my

own, eyes uplifted, patiently waiting and watching...and waiting...and watching...and waiting...

After some weeks of gazing into the sky I only—just maybe—saw the vaguest of appearances of something faint and fleeting in my peripheral vision. These somethings always eluded direct observation; or else I was repeatedly seeing and chasing the blind spots and floaters that haunt the inner workings of my eyes. Such blind spots and floaters are virtually invisible in the chaotic milieu of daily observations, but against a field of clear blue emptiness appear large and distractingly off-centre. With nothing more than these distracting projections and phenomenological aberrations my patience eventually turned to despair. So I decided to fabricate my own UFO photographs as a vicarious way of fulfilling my desires. Please remember I was only about ten years old at the time. I began to make small sets with simple props such as an old circular washing machine lid surrounded by small pieces of burning polystyrene plastic, its toxic fumes simulating the exhaust from some space ship about to take off; or I would throw a lid from an old pot into the air and make a snap against the sky or direct my friend to hold a fishing rod high over head with a saucer-shaped disc suspended on the end of a fine nylon line, while I framed and focused (Figures 1-4).



**Figure 1.** Washing machine lid UFO; D. Armstrong aged 10



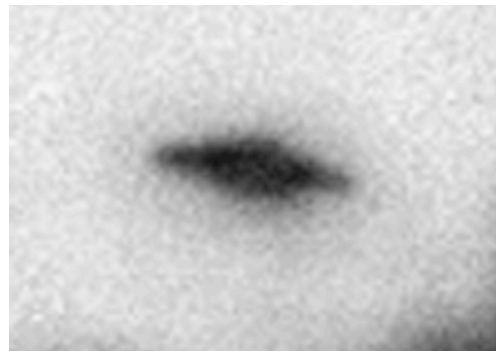
**Figure 2.** Pie dish UFO; D. Armstrong, age 10

I greatly enjoyed creating these images and soon found that if I moved the camera while shooting or placed the lens slightly out of focus I was able to create the types of images which were presented in the books and magazines as authentic documents. Initially this was most fulfilling for I had finally made concrete the vision I so desired. However, the irony of all this was that I began to doubt the many images which I had previously viewed as proof. With this realisation, that the so-called authentic images looked very much like my fabrications, came a sense of disillusion. The photograph had become a double-edged sword.

Looking back, I realised I had discovered something important about creativity and desire and about the relationship between photography and reality: that every image embodies the duality of truth and fiction, desire and disillusion and that all these seemingly opposite forces are intrinsic to the photograph image.



**Figure 3.** Distant UFO (digitally enhanced)



**Figure 4.** Distant UFO Detail; D. Armstrong

In 1954 Carl Jung was interviewed by the Swiss weekly *Die Weltwoche*, in which he expressed his sceptical views regarding the nature of Unidentified Flying Objects. He was, however, quite sensitive to the opinions of others. Jung said of this interview: 'I spoke with due respect of the serious opinion of a relatively large number of air specialists who believe in the reality of UFOs'.<sup>2</sup> Four years later the Swiss Weekly interview was rediscovered by the world press. Jung's diplomatic style was misinterpreted and he was quoted as being a believer in flying saucers. This distortion received a great amount of international coverage. In response to this Jung issued a statement to the United Press to make clear the true version of his opinion; but this time almost no one took any notice of his clarifications. Reflecting on this incident Jung said:

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<sup>2</sup> C.G. Jung, *Flying Saucers: A Modern Myth of Things Seen in the Skies*, trans. R.F.C. Hull, (New York: MJF Books, 1978), p. 3.

This time the wire went dead: nobody, so far as I know, took any notice of it, except one German newspaper. The moral of this story is rather interesting. As the behaviour of the press is a sort of Gallup test with reference to world opinion, one must draw the conclusion that news affirming the existence of UFOs is welcome, but that scepticism seems to be undesirable. To believe that UFOs are real suits the general opinion, whereas disbelief is to be discouraged. This creates the impression that there is a tendency all over the world to believe in saucers and to want them to be real, unconsciously helped along by the press that otherwise has no sympathy with the phenomenon.<sup>3</sup>

Jung was so intrigued by the public's deep desire to believe in the UFOs that in 1959 he published his book, *Flying Saucers: A Modern Myth of Things Seen in the Sky*. Although the writings are sceptical that extraterrestrial origins were responsible for the phenomenon, the book has little concern as to whether any flying saucers are real or not. Instead Jung concentrates on the psychic aspects. He described UFOs as being visionary rumours, a myth in the making, and as having quasi-religious connotations, of being a modern manifestation of age-old Salvationist fantasies and of being projections of unconscious psychic symbols of the self or psychic totality. Jung also dealt with analysis of dreams containing UFOs and their representations in art; but for this paper I wish to follow on from Jung's assertion that the press unconsciously discouraged the belief in UFOs while at the same time reflecting what the public desired.

There are numerous definitions of the term UFO (Unidentified Flying Object), with many signifying notions of an extraterrestrial origin. For example, the *Webster Dictionary* online defined UFO as 'An (apparently) flying object whose nature is unknown; especially those considered to have extraterrestrial origins'.<sup>4</sup> The conceptual origins of the UFO phenomenon are difficult to ascertain, as aerial incidences which give rise to such definitions have been reported for many years, if not centuries. For example, the term 'Foo Fighters' was coined during the Second World War to describe such inexplicable aerial phenomena which were apparently observed by air force pilots. The term Flying Saucer,

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<sup>3</sup> Jung, *Flying Saucers*, p. 3.

<sup>4</sup> At <http://www.webster-dictionary.org/definition/UFO> [accessed 20 April 2013].

which in popular culture is now synonymous with the term UFO, however has its origins in 1947, when a private pilot named Kenneth Arnold claimed to have observed a formation of nine, shiny, disc-like objects while flying near the Cascade Range near Mt Rainer, in Washington State on 24 June. Arnold's account appeared in the press over the following days, where it is said that he described the objects he saw as being disc- or saucer- or pan-like in shape and that their motion was like saucers skipping over water.<sup>5</sup> It seems from all accounts that it was the news media who caught on to the concept of the disc- or saucer-like shape and introduced the terms Flying Disc and Flying Saucer, the latter of which became an enduring term and gave form to a worldwide phenomenon, both by account and photographic images. Not only did the term become synonymous with UFOs but also with the idea that these were at least secret military craft, or more likely vessels of extraterrestrial origin.

The term Flying Saucer resonated with both the broader popular culture and individuals alike. Perhaps it was because it invoked a form or shape of something that was already deeply familiar to most people: an inverted plate. I also suspect that it has to do with the age-old activities, both ancient in practice and from the play activities of our own childhood, of throwing a discus of one sort or another, which on a subliminal level gives credence to the aerodynamics of the form and to the plausibility of saucer-shaped craft. In the book titled *Close Encounters: the Strange Truth about UFOs*, Alan West and David Jefferis have created a UFO classification guide in which they state, 'Reported sizes vary from just a few feet across to diameters of hundreds of yards. Large UFOs are generally regarded as 'mother ships'; smaller ones are thought of as exploration or scouting vehicles'.<sup>6</sup> While the reports of flying saucers usually refer to large vessels, in miniature it is something we have all enacted by throwing a Frisbee or saucer lid, or skipping a spinning stone across the water, as Arnold had described to the press in June of 1947 following his claims of having observed a UFO as flying 'like a saucer would if you skipped it across the water'.<sup>7</sup> In

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5 See for example, Anon., 'The 1947 Kenneth Arnold UFO Sighting', UFO Phenomenon: Scientific Evidence of the UFO Phenomenon and the Search for Extraterrestrial Life at <http://www.ufoevidence.org/cases/case511.htm>, [accessed 25 January 2011].

6 Alan West and David Jefferis, *Close Encounters: the Strange Truth about UFOs*, (Arrow Books, 1978), p. 12.

7 West and Jefferis, *Close Encounters*, pp. 5-7.

addition to such descriptions, the images provided by astronomical observatories since the late 1800s—such as the Great Andromeda Nebula (galaxy)—disc-like and rotating—have also reinforced the association between the form of the disc with that of the cosmos. I believe that such images, together with our own intuitive familiarity with the form, facilitated the cultural adoption and the enduring popularity of the term Flying Saucer.

The writings and media events of the late nineteenth century to the mid twentieth century undoubtedly left a residual impression on the collective as to the plausibility of extraterrestrial visitors. One notable example was Howard Koch's 1938 adaptation of H.G. Wells' *War of the Worlds*, which was produced for the Mercury Theatre of the Air by Orson Welles. So strong was the belief in this broadcast that many listeners got into their cars and fled their homes. At least one listener was reported to have committed suicide rather than having to face invading Martians. However, more recent studies would seem to indicate that the media of the day were exaggerating the intensity of the public's response at the time of the broadcast.<sup>8</sup>

From the early 1890s to the 1930s and to a lesser degree up to the 1960s, many people believed the planet Mars to be a living world not so unlike our own, one which was inhabited by intelligent life.<sup>9</sup> Stories such as *The Crystal Egg* (1897) and *The War of the Worlds* (1898), both by HG Wells, were heavily illustrated and offered the public an incredible and perhaps plausible frightening vision in the form of new technologies such as heat rays, tripod tanks, poisonous gases, aircraft-like machines and alien life forms. These visions were analogous to fears of invasion by some foreign country. For the English this might have been from Germany and, for America in the 1960s, UFOs were analogous to the vision of Russian nuclear missiles coming over the horizon. Carl Jung describes the UFO Phenomenon as visionary rumours which could be invoked by 'all manner of outward circumstances'. Jung said 'The basis for this kind of rumour is an emotional tension having its cause in a situation of collective distress or danger, or vital psychic need. This

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8 Robert E. Bartholomew, 'The Martian Panic Sixty Years Later: What Have We Learned?' *The Committee for Skeptical Inquiry*, Vol 22.6, November / December (1998) at

[http://www.csicop.org/si/show/the\\_martian\\_panic\\_sixty\\_years\\_later\\_what\\_have\\_we\\_learned/](http://www.csicop.org/si/show/the_martian_panic_sixty_years_later_what_have_we_learned/) [accessed 20 April 2013].

9 B. Hillman, 'MarsFever I - Mars Invades Earth' at <http://www.erbzine.com/mag23/2321.html> [accessed 20 April 2013].



condition undoubtedly exists today, in so far as the whole world is suffering under the strain of Russian policies and their still unpredictable consequences'.<sup>10</sup>

This late nineteenth and early twentieth century view of the planet Mars being a living world cannot be solely attributed to the writings of science fiction of this time; rather it stems more directly from what ostensibly was scientific context.

### **Percival Lowell**

Are physical forces alone at work there, or has evolution begotten something more complex, something not un-akin to what we know on Earth as life? It is in this that lies the peculiar interest in Mars.<sup>11</sup>

In 1890 a millionaire by the name of Percival Lowell commissioned the Alvan Clark & Sons Company to construct a large telescope, to be housed in an observatory located on a hill next to his house in Flagstaff, Arizona. This telescope was an immense optical device for its time. A refractor scope with a twenty-four-inch diameter lens, it was described as being the length of a bus and was supported by a mount which itself weighed five tons. Lowell became the self-appointed director of the Lowell Observatory in 1894 and remained so until his death in 1916. One of his main objectives was to further the studies of the planet Mars, a project that he undertook for more than twenty years.<sup>12</sup> The observations he made and the conclusions he drew shaped the way Mars would be perceived for the decades which followed.<sup>13</sup>

What Lowell saw when he peered down his telescope was not just a softly-focused red disc with its modulations of tone and dark patches; he saw the site of his own imagination. Lowell, it seems, had an exceptional ability to see the finest of details at a resolution well beyond the optics of his telescope. The large dark blobs such as that of Syrtis Major, once known as the Hourglass Sea, had been observed to move

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10 Jung, *Flying Saucers*, p. 13.

11 Percival Lowell, *Mars* (USA: Brohan Press, 2002 [1895]), p. 3.

12 Francis Jackson and Patrick Moore, *Life on Mars* (London: Routledge and Kegan Paul Ltd, 1965), p. 72.

13 Michael Hanlon, *The Real Mars: Spirit, Opportunity, Mars Express and the Quest to Explore the Red Planet* (New York: Carroll & Graf, 2004), p. x.

across the planet, due to its rotation, and the polar caps were also known to increase and decrease with the seasons.

The red planet was thought to have large oceans and seasons similar to our own. But what Lowell also perceived and recorded were a large network of lines which he described as canals. Speculation that Mars might be a living world had been around for many decades and this was already a topic of deep fascination for Lowell. When he saw these canals Lowell was convinced that he had confirmation of what he already believed to be true; for he postulated that these canals were, in fact, irrigation channels on a vast scale, and that this was the work of a Martian civilisation which was caught in the death throes of a drying and dying planet. They were channelling water from the melting polar caps to the equatorial planes for agricultural irrigation.

The idea of these canals has its origin in the earlier work of the Italian astronomer Giovanni Schiaparelli who, in 1877, when Mars and Earth were closely aligned, thought he had observed a network of faint lines on the surface of Mars.<sup>14</sup> Such lines had also been suggested by other astronomers as early as 1840. (Note that there were many astronomers who never saw such lines and were sceptical of the observations of those who claimed they had.) However, in his description of these, Schiaparelli had called them ‘canali’, which is Italian for ‘grooves’. At some point this was translated into ‘canals’ and with this translation came a shift in meaning, from something as simple as groove (a cut in a surface) or a geological feature, to something artificial which, in turn, implied something of intelligent origins.

Night after night Lowell and his assistants continued their study of the planet, recording their observations by hand with a systematic methodology.<sup>15</sup> Always trying to obtain more detail, on a number of occasions and at vast expense, Lowell even had his telescopes dismantled and relocated to various sites around the world in the pursuit of better visibility.<sup>16</sup> As the years passed the drawings of these canals became increasingly complex in detail. In all he recorded seven hundred canals,

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14 Hanlon, *The Real Mars*, p. 28.

15 Hanlon, *The Real Mars*, p. 1.

16 For an extensive discussion regarding Lowell’s desire for more detail and the employment of photography to try and achieve this as well as the relationship between the photographic record and the hand-recorded drawings see: Jennifer Tucker, *Nature Exposed: Photography as Eyewitness in Victorian Science* (Baltimore: The Johns Hopkins University Press, 2005), pp. 212 – 228.

many of which were like tiny rhizomes stemming from larger channels. At points of intersecting lines he speculated that large cities would be established. He claimed to have observed changes in colour as green crops matured; and dark patches which shifted across the planet were thought to be plagues of insects devouring the Martian crops. He claimed that the temperature of Mars was moderate and similar to the southern parts of England, and throughout these decades wrote extensively about a civilisation struggling to survive the encroaching desert sands; how they had undertaken this monumental engineering task to bring water to the lower latitudes of their world. The idea of such a project was not beyond the popular imagination of the times, when the construction of the Panama Canal was at that time underway. Lowell even claimed to have seen flashes of light ascending from the Martian atmosphere, which he interpreted as signals or messages from a dying civilisation trying to contact its nearest earthly neighbours.

In total, Lowell wrote hundreds of letters and essays and three books: *Mars* (1895), *Mars and Its Canals* (1906) and *Mars as the Abode of Life* (1908). He also gave hundreds of lectures which were usually completely sold out. He was extremely popular, and by all accounts his claims were as much the topic of conversation and debate as Darwin's theory of evolution, for both the public and scientific community. There were many scientists who disagreed strongly with these claims, but Lowell was nonetheless accorded much respect, and the press of the day provided him with a great deal of coverage. It was known as 'Mars fever' at the time and it maintained its fervour for some twenty years or more.

What was most remarkable is that Lowell had no real hard evidence, apart from his observational claims and the drawings he made. Many other astronomers of the day said that they could not observe these canals. In the book *Nature Exposed*, Jennifer Tucker gives accounts of two astronomers who disagreed with Lowell's claims. Tucker refers to the British astronomer Edward Walter Maunder, who worked at the Greenwich Observatory. In the early 1880s he wrote a series of articles for the Sunday Magazine on Mars. In one of these articles he wrote, "Canals' in the sense of artificial productions [do not exist. It] is difficult indeed to understand how such preposterous an idea obtained currency".<sup>17</sup> Tucker also cites the highly respected amateur astronomer and artist Nathaniel Green, who was the president of the British Astronomical Association from 1897 to 1898. In giving an address to the Royal

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<sup>17</sup> Tucker, *Nature Exposed*, p. 209.

Astronomical Society in 1882 Green said, ‘...I am persuaded that those [canal] appearances require great caution, that is, we should not recognize them as facts until others have seen repetitions of the same phenomena’.<sup>18</sup> Lowell dismissed those who refuted his theories, claiming that they did not have good enough telescopes, or that they were poorly located and suffered from bad lighting and atmospheric conditions.

Today the Clarke telescope is still in operation at the Lowell observatory. It is used for public viewing and many enthusiastic astronomers have made the pilgrimage to this historical instrument and portal of Lowell’s visions. Science editor Michael Hanlon visited the Clarke observatory in 2003, when Mars and Earth made their closest approach, a mere 55,758,006 km apart, which is the closest since the year 57,537 BCE. Although he knew better, Hanlon took with him the desire to see what Lowell had seen and to experience not just the light and image of Mars passing through the same lens and into his eye, but perhaps to catch a glimpse of the wonders with which Lowell had spent so many enchanted years. The objectivity of the instrument however betrayed its master’s vision. Hanlon recounts what he saw:

I squint and press my eyes against the glass once more, hoping to see Lowell’s Mars flash into view. I try focusing my eyes, turning my mind’s eyes to the side, hoping that I can fool my brain into seeing the hidden detail that remains tantalizingly out of reach. The fact that I know perfectly well that the canals aren’t there, that Percival Lowell had fallen victim to eyestrain, relentless optimism and optical illusion does not quench my disappointment. I had hoped to see Lowell’s Mars, through Lowell’s telescope, and it was not there. This was not the Mars of canals and princesses. I was seeing another Mars – the real Mars.<sup>19</sup>

Lowell sincerely believed in what he perceived and on many occasions he enlisted photography in a vain effort to verify his observations. In November 1903 Lowell said to his assistant Earl Slipher, ‘It would be encouraging to have an undisputed canal show in a plate’.<sup>20</sup>

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18 Tucker, *Nature Exposed*, pp. 210–211.

19 Hanlon, *The Real Mars*, p. xii.

20 Hanlon, *The Real Mars*, p. 8. There were two Slipher brothers, both of whom were astronomers and worked at the Lowell observatory. Earl Charles Slipher

Even when combining the best of his optics with highest quality photographic equipment the canals refused to appear on the photographic plates. The plates displayed a softly focused disc with polar caps and dark blobs but no canals. Photography could not provide Lowell with the definitive proof which would settle his claims once and for all. He did present some of these images, and they simply fuelled the debate, with some people claiming to be able to see the canals while others clearly did not. While disappointed, Lowell remained undeterred and simply believed that the medium was no match for his hours of observations and drawings.

What we know now is that Percival Lowell did not see any canals on Mars. Many scientists have offered explanations suggesting that his erroneous visions may have been due to a combination of factors, including eyestrain and fatigue, soft optics and other aberrations within his telescopes.<sup>21</sup> I would also suggest the possibility of phenomena such as phosphenes, (the sensation of soft flashes of light or luminescence which the eye can generate within itself, usually in response to applied pressure).<sup>22</sup>

In his book *Dying Planet: Mars in Science and the Imagination*, Robert Markley states, ‘As early as the 1890s, some astronomers questioned Schiaparelli’s observations and suggested that the Italian astronomer was reducing complex natural formations to an angular geometry’. Markley also describes how the English astronomer Edward Maunder, in response to Lowell’s drawings, argued that the canals were a result of the mind’s tendency to join up unconnected dots.<sup>23</sup> Perhaps what Lowell saw when he looked down the telescope was more akin to an image of his own visual cortex, with its network of nerves firing off in his imagination. What is clear is that Lowell wanted to see this alien world. When he peered into his telescope he projected his desires onto a tiny red spot—an inner world projected and mapped onto a distant outer world. Perhaps even more astounding is that when he did see canals he saw more

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(1883-1964) concentrated much of his research on Mars and Vesto Melvin Slipher is famous for his measurements of shift in the spectral lines of galaxies.

21 Tucker, *Nature Exposed*, p. 215.

22 E. Tkaczyk, ‘Pressure Hallucinations and Patterns in the Brain’, *Morehead Electronic Journal of Applied Mathematics* Issue 1, (2001) at <http://www2.moreheadstate.edu/files/colleges/science/mcs/mejam/tkaczyk.pdf> [accessed 19th May 2013].

23 Robert Markley, *Dying Planet: Mars in Science and the Imagination* (Duke University Press Books, 2005), p. 79.

than just markings, he saw a whole story unfolding. In 1939 the French-American astronomer Gerard de Vaucouleurs said, ‘We must admit that observers have too often begun the study of Mars at the wrong end of their telescopes’.<sup>24</sup>

From the late 1930s onwards telescope technology improved greatly and it became increasingly evident from the observations made through such vastly superior instruments that no canals were visible—surely the belief in the Martian canals was finally drying up! Despite all this Lowell’s romantic vision persisted for many years and well into the 1960s. While there was no more evidence to confirm, there still was no hard enough evidence to disprove. It finally came when, on 14 July 1965, the Mariner 4 spacecraft sent back the first of a total of twenty-one photographic images, revealing Mars to be a dry and barren moon-like landscape. This vision of a desolate landscape would finally obliterate Lowell’s Mars. It seems ironical that these low resolution images from Mariner 4 clearly conveyed to scientists that Mars was dead. Once again photography was responsible for the disillusion of a desired vision.

It is remarkable that in 1967 the US Air Force was still producing maps of Mars which featured Lowell’s canals.<sup>25</sup> A lingering persistence of Lowell’s vision remains even today, like a romantic veil that refuses to be torn away. The vision of Mars is now being redefined, as evidence emerges to suggest that Mars may once have had oceans and riverways of liquid water, warmer temperatures, a denser atmosphere and maybe even life. Lowell’s vision is, in essence, the same vision; but now it is a gaze mediated through robotic vehicles and remote cameras, and it is we who have become the visitors from another world.

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24 Gerard De Vaucouleurs, in Michael Hanlon, *The Real Mars: Spirit, Opportunity, Mars Express and the Quest to Explore the Red Planet* (New York: Carroll & Graf, 2004), p. 10.

25 Hanlon, *The Real Mars*, p.11.