FROM WEIGHTLESS WORLDS TO HYBRID HOMES: RETHINKING THE EXTRA-TERRESTRIAL

LEONIE COOPER

The space station and the virtual world are worlds, both real and imagined. Questioning established ways of imagining the extra/terrestrials, this paper provides a snapshot of a poetics of thought that can situate these seemingly disparate realms in productive relation to each other in order to address the ambivalence that is activated when they are inhabited through media technologies.

Introduction: Connecting Events

In a post by General Motors on my Facebook feed on March 19, 2011, a video recording of two astronauts unpacking the crate that contained the first robot to inhabit the ISS, Robonaut 2, appeared. In itself, the posting of this video was no surprise as NASA continues to extend the theatrics of space that it first choreographed during the Space Race in the 1960s with the use of television into the realm of social media. In a manner not so dissimilar to the collective audience constituted for the Moon Landing and other subsequent events, I was asked to bear witness to another milestone in space exploration and research. Yet watching this event I was reminded of another that also occurred 'on' my computer screen only two days earlier on March 17, during which a different form of astronaut struggled into existence. After I had manoeuvred my avatar to take a seat to watch a presentation by another avatar, Archivist Llewellyn, at the *Virtual Worlds Best Practice in Education* conference in *Second Life*, I waited with the audience while the speaker attempted to 'rez', without success, in the form of an astronaut.

Speaking of these micro-events in parallel points to a larger project I have undertaken into investigating the relations between space travel and screen media including film, theme park attractions and virtual worlds. Space travel has much to offer as a hermeneutic pathway into the figuration of the film screen as a space to be navigated, but my concern here is with media habitats, and with how both the space station and the virtual world operate as such. To make this argument, however, a central problem must be faced: how to conceive of these habitats as being in a relation of mutual constitution without resorting to a form of analogous thinking that has served to insulate these worlds-that-are-weightless from the tensions that are activated when they are imagined as, often paradoxically, capable of inhabitation.

Testing out the extra/terrestrial

Within the microgravity conditions of the space station, the astronaut floats. In the video of Robonaut's unpacking, their almost slow-motion gestures as they remove the foam padding surrounding 'him' signifying that their world is inherently different from that which their audience occupies. Weightlessness: it is the essential problem meant to be resolved by the psychologists, designers, behavioural scientists, anthropologists and others in the service of research into extended human spaceflight. It is also the symbolic condition that has constituted this extra-terrestrial habitat as ontologically different and enabled artists to explore what Eduardo Kac calls "antigravitropism", the capacity to create forms not constrained by gravity. [1] Even with persistent exposure to live 'feeds' from the space station, this phenomenon still fascinates as exemplified by the amount of attention that was paid to the unruly nature of

mission specialist Sandra Magnus's hair during a video call from President Obama on July 21, 2011 (designed to assure the crew that this last mission of the shuttle *Atlantis*, and the end of the American shuttle program, would not affect humankind's onward journey to the stars).

Yet, the marking out of the ontological conditions that appear to separate this world from the terrestrial has not stopped it from being imagined in terms analogous to other habitats. In studies on the effects of life in orbit on human inhabitants, research often occurs within 'space-like' environments on Earth where the terrain mirrors the harsh conditions in space and the habitats mimic the psychological and social conditions aboard the space station – the most current (webcasting 'live' of course) being at the Black Point Lava Flow in northern Arizona is NASA's 14th Desert Research and Technology Studies (RATS) mission. *The Deep Space Habitat* in the Arizona desert works in parallel to its off-world counterpart: both operating as diagnostic environments not so different to the training situations in the simulator that characterised the early days of American space travel and figured the astronaut, as Tom Wolfe ironically put it in his book *The Right Stuff*, as "a lab rabbit curled up motionless in a capsule with his little heart pitter-patting and a wire up the kazoo." [2]

Constructing such analogous relations might be necessary for research into the embodied effects of extended spaceflight but it is an epistemological process not without bias. In his study of space law, M.J. Peterson has argued that a form of analogical reasoning was key to Russia and the United States forming (at least preliminary) agreement on how terrestrial laws should apply to extra-terrestrial contexts. Whereas Russia likened outer space to the near-earth environment of aerospace, the United States advocated for an analogy with the high seas, an argument not surprising given the frontier imaginary that has fuelled the American political landscape and its discourse on space exploration. A process of "mutual persuasion" occurred, Peterson has argued, by isolating potentially useful analogies, mapping features from the source domain to the target domain (which is outer space in this case) and then transferring inferences about the existence of other features to create a model that was seen to best fit the situation. [3] To make reasonable inferences about one domain based on its likeness to another might be a process of cognitive reasoning, as Peterson argues, but the selection of the features that were inferred from the high seas to outer space depended as much on their phenomenological pull as their epistemological weight.

In other words, while analogous relations between the extra/terrestrial have been historically generated from a purportedly rational process of observation, their force depended primarily on a form of "thinking in images", a process that Michel Le Doueff argues has fundamentally informed Western scientific and philosophical thought. [4] The work of this imaginary has enabled authors such as Arthur C. Clarke to poetically figure the space station as an island floating in the sky in order to then articulate the knowledge-making processes, the 'science', that he puts to work upon it. [5] Much like Kant's island to which Le Doueff turns her attention and the phenomenological resemblances that allowed outer space to be considered similar to the 'high seas', imagining the space station as a floating island maintains the ontological difference of this weightless domain without undermining the symbolic gravity of the scientific enterprises that occur upon it.

Extending upon Le Doueff's argument, this poetics of thought enables the marking of ontological borders and yet its figurative work must be disguised. The operations of this imaginary (operating where, Le Doueff argues, it is not "meant to belong") can be traced in the video of Robonaut 2's assembly. [6] The box that contains Robonaut 2 is a microcosm of the space station itself. Unopened, it promises an array of components, neatly packaged, wrapped in plastic and Styrofoam. This chamber with its secrets

speaks of a closed hermetic world, set apart from the terrestrial in its clinical modularity. With the astronaut's hair floating like a halo as she lifts the lid of the box with seemingly little effort, its opening only testifies to the ongoing allure of this weightless world. Even when the lid is lifted to reveal that this crate is empty and no assembly is actually required, this emptiness only figures the space station as equally empty, as placeless place floating within a void.

Yet, and at the same time, this exercise is figured in terms analogous to the terrestrial. Assembling a robot might be a matter for scientists and engineers, but unpacking it is familiar territory to those who occupy the space station and who must also figuratively operate as interior decorator and housekeeper. Whether it is the familiar routine of unwrapping presents around the hearth or installing another component within the Deep Space Habitat in Arizona, the delivery of this newest addition to the ISS renders the symbolic operations that occur within this domain as essentially similar to its analogical situations.

The inherent problem with this imagining of the space station as habitat is that it perpetuates the ontological split that has informed much thought on space travel. Those who have spoken of the desire to 'go into space' must negotiate a conundrum: space is either figured as an 'imaginary' realm that enables those who are bound to the terrestrial to make sense of the symbolic and material effects of science and technology or one that tempts the so-called Earthbound into flights of figurative fancy that deny the ethical weight of lived terrestrial conditions. Thus, Constance Penley can argue in her study of NASA/TREK, a "hybrid" cultural terrain where the actuality of space travel intersects with its imaginary conditions as enacted in the television series Star Trek, that "going into space" is a primary mechanism for making sense of science and technology. [7] However, for others to go into space, or even to imagine so, is to fall "prey to 'ascensionism'… a general psychic orientation towards brightness, levitation, flying, climbing, upward pointing and moving." [8] Even Penley cannot avoid this trap as she begins her book recalling childhood trips to Kennedy Space Centre to watch rocket launches – a journey where what was real and what was only a dream were meant to blur. Such utopian imaginings can easily be conjured to serve the opposing argument: David Lavery, for example, recalling a dream in his critique of the desire to escape Earthbound conditions, but in his case one that was a nightmarish "nothing"… "blank, dark and abysmal: no light shone on it from any source." [9]

Beyond the extra/terrestrial: of real-and-imagined worlds

Can the space station and the labour of those who struggle to inhabit this weightless world be imagined without reconstituting this dilemma, where the 'Spacebound' and the 'Earthbound' are inevitably split? Moreover, can a world where avatars appear be considered in the same light as one in which robots are assembled, where the first is an environment generated from software and the second capable of being physically inhabited (albeit only at the risk of physiological harm due to radiation, calcium loss, muscle atrophy and the psychological effects of isolation and cramped conditions amongst a multitude of complex factors)? It might be possible, if a cue is taken from Edward Soja's thinking on "real and imagined worlds." [10] Soja uses this term to acknowledge the materiality of physical space(s) but to also understand how such space(s) are conceived, imagined and represented. In his terms, the space station is a world both real-and-imagined. Without denying its material differences as a physical environment, life aboard the space station has always been as much a matter of Imagineering, to use the term employed by the designers of the Disney theme parks, as engineering. The 'space' of the station is the contemporary equivalent to the mise-en-scene choreographed by NASA for its astronauts and it is designed so that its temporary inhabitants are as much viewers as figures for viewing: apertures act as windows through which astronauts have viewed (and photographed) the Earth and as doors that enable them to

perform the necessary social rituals of greeting each other as they move between modules performing their daily tasks, or saying farewell as they depart back to Earth – with all such scenarios perennially on view, courtesy of NASA TV.

Moreover, the station now operates as much as a world articulated upon the computer screen as a satellite circling the Earth. This physical infrastructure compiled from trusses and girders, nuts and bolts is no longer just symbolically tethered to the Earth by the transmission and reception of data packets. In service to the techno-scientific imaginary of Western thought as a sign that the parallel trajectories of cyberspace and outer space that have been tracked from the launch of the first satellite *Sputnik 1* have finally converged, it is bound to dissolve into the kind of super interplanetary datasphere ideally envisaged by journalists when they witnessed the Jet Propulsion Laboratory choreograph the *Pathfinder* mission in 1997 as a short-term, high-visibility media event required the development of a web portal and the ability to replicate, store and transmit Martian images and information across a commercial infrastructure of 1,300 reflector sites worldwide. Moving far beyond the communications network of weblogs, LAN networks and email envisaged as necessary to keep astronauts "in touch" with the "Earth-bound" and to form a "viable" community of their own by researchers in media and communications, [11] the space station is now a fundamental component for the operations of NASA's desktop universe; perpetually online, feeding information, images, video and animations 'live' to our social networks. The unpacking of Robonaut 2 – indeed, the 'transmission' of the video that is archived on NASA's video gallery – is significant then for not only what it captures but its perennial availability, able to be accessed and 'regenerated' at each click of the play button.

If the space station is now key to NASA's cosmos on the computer, as much online as it is in space, life in space has also become a common means of poetically rendering online, multi-user worlds such as *Second Life*. Archivist Llewellyn's choice of an astronaut as their in-world representative is both indicative of their work as an archivist for *NASA CoLab* – an island within Second Life where a visitor can discover all the accoutrements of space travel ranging from rockets to lunar rovers – and the fact that the topography of space travel is now integrally embedded within the computational terrain of this virtual world. Parallels between the space station and the virtual world extend beyond the use of space-age iconography. The imaginary that has enabled the space station to operate in terms analogous to other habitats and act as a floating island set apart from terrestrial conditions also infiltrated early thought on virtual worlds. Self-proclaimed 'pioneers' of such worlds, during their 'adopter' period in the 1990s imagined them as islands floating within the oceanic vastness of the Net. With its emphasis on building, Second Life appears to have become the most fertile ground to establish relations with life aboard the weightless world of the ISS. Whereas the cybernaut and the astronaut might have once been rendered kin as they navigated their respective spatial realms of cyberspace and outerspace, now the astronaut and/as avatar is the configuration that enables the assembly of these worlds for inhabitation, particularly if the activities of a group of Second Life residents, currently numbering sixty-four, who advertise their services as "space riggers" on NASA CoLab are taken into account.

Soja's term, real-and-imagined, has been invoked in regard to virtual worlds, and Second Life in particular, to foreground the complex spatialities emerging between online and offline environments in distinction to viewing what is built in-world, in this case artwork, as analogous to its offline counterpart in the gallery. [12] His conjoining of the real and the imagined also offers a means of recognising that the virtual world and the space station might both operate as real-and-imagined worlds without denying their unique material conditions. However, his adoption of a form of both/and… also thinking is equally important and particularly significant if the complex and contradictory processes that have constituted both these real-and-imaging worlds are to be recognised.

Conclusion: The strangeness somewhere in-between…

The task of unwrapping Robonaut was another opportunity for the astronauts aboard the ISS to perform for those 'back home' at Mission Control as they pretended to all those watching that the crate containing the robot was empty, their labour a means of making the techno-scientific matters of robot assembly familiar and fun. Consider Robonaut 2's assembly as another figurative articulation of the space station as a real-and-imagined world and the imaginary processes that have constituted it as such begin to become apparent. Yet, the epistemological work of this imaginary remains unaffected. The astronauts labour only to draw attention to that which is empty and, in turn, to a weightless realm that awaits the symbolic gravity of an analogous domain.

View Robonaut 2's and Archivist Llewellyn's acts of dis/appearance as emerging from the interstices between both real-and-imagined worlds and the poetic rendering of these worlds as weightless domains that can only be inhabited by those who are 'Spacebound' or 'Netbound' is not such an easy endeavour. In her work on "thinking in images", Le Doueff has suggested that, rather than disguising the work of the imaginary, philosophical thought should recognise the "quality of strangeness" that is necessarily activated when image-making is put into the service of science. [13] Extend such an argument to the realm of techno-science and space travel, and instances of this epistemological tension are evident. Sending men and women to the stars has always been a troubling matter: those returning from the Moon looked more like aliens than pilots; the starlight that penetrated the retinas of those bodies transported within capsules from the Earth more often rendered as displays of potential ruination than illumination whilst the figures transmitted back to Earth appeared more to be ghosts than star-voyagers. [14] This ambivalence towards the confusion of ontological and epistemological borders persists as NASA continues to design the cosmos as a kind of desktop universe. Soja's thinking is useful in that it not only foregrounds the space station and the virtual world as both real-and-imagined worlds but enables them to be situated in a productive set of relations. Such a both/and poetics of thought is important as it also points beyond established thinking on the relations between the extra/terrestrial towards the ambivalence that is activated when these strangely compelling realms are both imagined as worlds for inhabitation.

References and Notes:

1. Eduardo Kac, "Against Gravitropism: Art and the Joys of Levitation," *Zero Gravity: A Cultural Users Guide* (London: The Arts Catalyst, 2005), 18-25.
2. Tom Wolfe, *The Right Stuff* (New York: Farrar. Straus, Giroux, 1979), 78.
3. M.J. Peterson, "The Use of Analogies in Developing Outer Space Law," *International Organization* 51, no. 2, Spring (1997): 246-265.
4. Michel Le Doueff, *The Philosophical Imaginary* (London: The Athlone Press, 1989).
5. Arthur C Clarke, *Islands in the Sky* (Middlesex: Puffin Books, 1972).
6. Le Doueff, opcit. 2-3.
7. Constance Penley, *NASA/TREK* (London and New York: Verso, 1997), 4-5.
8. David Lavery, *Late for the Sky: The Mentality of the Space Age* (Carbondale. Southern Illinois University Press, 1992), 29.
9. Lavery, opcit. 208.
10. Edward W. Soja. *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* (Massuchesetts: Blackwell, 1996).
11. S. Babdige, J..Cokley, F. Gordon and E. Louw, "Making Media Work in Space," *International Journal of Astrobiology* 4, no. 3 & 4 (2005): 259-268.

12. *Denise Doyle, "Art and the avatar: the critical works in SL project," International Journal of Performance Arts and Digital Media vol 4, no. 2 & 3 (2008): 138-139.*
13. *Le Doueff, opcit. 10.*
14. *Leonie Cooper, "Imagining Astronauts," Star Voyager: Exploring Space on Screen (Richmond, Hardie Grant & ACMI, 2011), 44-53.*