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Digital ruins

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Abstract
In recent years, Geography has seen a rebirth of interest and appreciation of ruins, abandoned and neglected spaces of industrial modernity. This work has often emphasised the sensuousness of the material contextualisation of industrial ruins largely in terms of the phenomenological experience of decay, disorder and blight, or the affective elements of these spaces through concepts such as 'ghostliness' and 'haunting'. This article is an investigation into ruins or abandoned spaces which do not have materiality or temporality: digital ruins. Existing in a kind of eternal present, such spaces do not decay, yet still demonstrate many of the affective, phenomenological and existential experiences of what we understand to be ruin, abandonment or blight. Using autoethnographic research of a variety of abandoned and nearly abandoned virtual worlds, this article will reconsider the notions of 'ruin' within the increasingly important context of digital spaces, the utopian rhetoric which framed the development of these worlds, and situate the digital ruin within a wider critique of digital prosumerism.

Keywords
abandonment, creative abandonment, creative destruction, existentialism, prosumer, ruin, virtual worlds

Introduction

On 14 January 2011, the CEO of *Avatar Reality*, Inc., Jim Sink, addressed a gathering of AR staff and developers in the welcome area of the virtual world, *Blue Mars*: a world which opened to the public in beta form in September 2009 and which by November 2010 was a community of 3,500 registered users and 330 developers.[1] Sink was announcing a restructuring of *Avatar Reality*, the parent company of *Blue Mars*, which was now going to redirect the focus of *Blue Mars* towards mobile applications. Essentially, this meant withdrawing technological support for PC users, and the redundancy of

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most existing AR staff engineers, including Sink, the CEO of the company. This was, effectively, the end of *Blue Mars* as far as developers were concerned. Over a short period, developers and other users left the site. By November 2012, *Blue Mars* was no longer a viable business entity or community. It does still exist however, managed by Ball State University and running on *Avatar Reality*'s new owner, *Immersive Worlds*', servers to this day – perhaps waiting to be rediscovered.

We first encountered *Blue Mars* in late 2014 as a completely abandoned world. Intriguingly, the final two entries on its forum page (which closed in April 2013) were entitled 'Ghost world?' and 'Where is everyone?': a testament to its post-apocalyptic status in virtual terms. After creating avatars, we entered *Blue Mars* and found an (almost) fully functioning, sophisticated, visually ambitious set of virtual spaces, terrains and environments which were completely empty of others. In the spirit of urban exploration, we rode rollercoasters, flew UFOs, browsed shops, bowled and explored amazing spaces, completely on our own. The eerie absence of others within a fully functioning world pervaded our experiences with the somewhat melancholic realisation that this must have been a fledgling community at one time, a place where people spent thousands of hours building, socialising and trying to create something, only for it to all be left behind.

Blue Mars was one of dozens of virtual worlds created roughly between 1996 and 2012. The development of *Blue Mars* itself was part of a peak wave of virtual worlds creation which followed the development and launch of the highly publicised, and, for a time, highly successful virtual world of *Second Life*. At the time, this speculative boom of virtual 'real estate' promised a digital economy of abundance: selling homes, lifestyles, communities, business opportunities and experiences at a fraction of the cost of their material counterparts while providing an unfettered, utopian environment for creativity and self-actualisation. Not even a decade later, this techno-utopian dream lies in ruins. In the face of dwindling users, many of these worlds have already disappeared, but the Web is still littered with several similar, often still fully functioning, virtual worlds which have all but been abandoned.

This article seeks to understand these unique spaces. It is inspired by recent work on contemporary industrial ruins[2] and the spirit of urban exploration.[3] However, while having much in common with their industrial, material counterparts, post-industrial, digital ruins such as *Blue Mars* provide both interesting phenomenological and analytical contrasts to contemporary material ruinscapes. They also provide a unique opportunity for a critical analysis and commentary on contemporary digital capitalism, particularly in terms of its techno-romantic utopianism, exploitative nature and speculative discourses of economic abundance.

This article thus reconsiders the notions of 'ruin' within the increasingly important context of digital spaces and is based on an ethnographic exploration of three abandoned or semi-abandoned virtual worlds (*Blue Mars, Active Worlds* and *Twinity*). After a methodological discussion and review of literature on industrial ruins and digital landscapes, we will then define what we mean by 'digital ruin', especially with regard to their phenomenological relationship with abandonment, decay and the temporal. We shall then describe their existential qualities, particularly in terms of what kinds of meanings are produced while traversing these places. Then, we examine these worlds as landscapes haunted by their cyber-utopian ambitions and intents. Finally, we conclude by critically contextualising these spaces as prosumer landscapes of digital abundance, reflecting the tendency towards 'creative abandonment' in digital capitalism, as opposed to the 'creative destruction' of material capitalism.

Researching digital ruins

> The impact on Earth society is hard to overestimate . . . Families living thousands of miles apart will meet every day for a few hours in the evening, gathering their avatars around the virtual kitchen table and

> catching up. And the day of driving to the store may well be over . . . everyone will be sailing across the azure heavens on their flying purple horses, to shimmering virtual Walmarts in the sky.[4]

In 2005, economist Edward Castronova published *Synthetic Worlds: The Business and Culture of Online Games*, one of the first comprehensive studies of virtual world environments.[5] This study was primarily focussed on gaming worlds, such as *Ultima Online, Star Wars Galaxies* and *World of Warcraft* – not only as profitable businesses, but as spaces that were beginning to generate significant economies with implications in the 'real world'. However, he also included a relatively new site, *Second Life*, which, in contrast to gaming worlds, had no organised 'gaming' element: no developer-made puzzles to solve, no linear or open mission design and no levels to beat. Instead, *Second Life* was at its core what he called a 'social world', in which the primary goal was to socialise and chat with other people. Users were encouraged to invest their time and money in the world (through mechanics put in place to create interaction between players and these virtual environments) by building and modifying their avatars, developing land and creating virtual objects, environments and social spaces.

In the not too distant future, these kinds of practices, where the onus of content production and value creation in a digital platform lies largely in the hands of those who are the users or consumers of those platforms, would be commonly referred to as digital 'prosumerism',[6] a term originally coined by Alvin Toffler to refer to the blurring of the roles of producer and consumer in economic processes. Indeed, these actions had (in the case of *Second Life* and some similar worlds) begun to create an economy as people began to develop and sell land at a profit, and create businesses selling virtual consumer goods and services or selling avatars themselves.

Castronova's depiction of these emerging economies was indeed prophetic in the case of online gaming, where their potential has been realised in the form of a hugely profitable Massively Multiplayer gaming industry[7] but the 'social worlds' he described have not lived up to this potential. Seventeen years later, one hears very little about these types of virtual worlds. With more developed social platforms (e.g. social networking and video conferencing), there are now more immediate ways to achieve the kind of interactions Castronova described above, and the *gamification* of those interactions has now been replaced by game worlds with clear game objectives and social interactions though gameplay mechanics.

However, between 2000 and 2010, such was the hype for all things virtual-social, that dozens of these virtual worlds were developed[8] to capitalise on this new speculative electronic frontier. Over time, many, such as *Kaneva* and *Your Alternative Life*, have been deleted. Some such as *There.com* have been deleted and subsequently reborn with no success. Others, such as *Red Light Centre*, *Entropia Universe* and *IMVU*, continue to modestly thrive in the niche markets of adult content, gambling and cybersex. A surprising number though continue to exist as abandoned or semi-abandoned spaces, largely forgotten, but often still home to a dwindling group of users who doggedly persist among a vast array of increasingly empty virtual spaces. The latter kind create questions about the remains – the traces – of agency in worlds which are materially intact. We consider these spaces to be emblematic of digital ruins: *online spaces that have been largely abandoned by their users but continue to exist intact.*

In our investigation of digital ruins, we engaged in an ethnographic exploration of three abandoned or semi-abandoned virtual worlds (*Active Worlds, Twinity* and *Blue Mars*) conducted from December 2016 to November 2017. These three study sites all have their own unique histories, aesthetic and interactive features, software architectures, funding models and levels of success (and failure). *Active Worlds* was developed as the first online three-dimensional (3D) virtual world by *Circle of Fire Studios* and fostered a large and dedicated user and builder community in the late 1990s and early 2000s. A succession of financial problems, ownership changes, reorganisations

and subscription fee rises led many to abandon the site in favour of *Second Life*. *Active Worlds* still has over 550 ‘worlds’ in it and is populated by roughly 30–35 people at any given time. For context, *Alphaworld*, the largest of the over 500 worlds available, is roughly the size of a virtual California. Since 2013, *Active Worlds* has operated as a free service with no subscription fee and, unlike the other worlds below, no in-built economy.

Twinity was released in 2008 by *Metaversum GmbH* and possessed the unique selling feature in that the site had ambitions to ‘mirror’ major world cities such as Berlin, Singapore, London, New York and Miami, even including *Google* street maps in its interface. New users were given ‘starter apartments’ in Berlin and then encouraged to buy and create their own spaces, houses and consumer goods. At its height, roughly 100 people would be on site at any given time. Currently, co-current users usually number less than 15. The policy of giving away free ‘starter apartments’ with registration has resulted in *Twinity* becoming a universe of empty rooms.

Finally, the above-mentioned *Blue Mars* (released in 2009 by *Avatar Reality*) was marketed as a builder/developer-friendly, technologically superior alternative to *Second Life*, allowing for more sophisticated environments and social interactions. The *Blue Mars* philosophy was not to tolerate unfettered user-generated content, but to licence developers to maintain a standard of quality in the environment (although anyone could apply to be a developer). After a switch to emphasise mobile interfaces, users and developers abandoned the site, and it remains empty of users.

We made several site visits at varying times to each world to explore different places and sites still open for public consumption, but largely ignored or abandoned. Resonant with real-world urban exploration (which emphasises how ‘experimental modes of exploration can play a vital role in the development of critical approaches to the cultural geographies of cities’[9]), we documented our experiences through still and moving images and soundscapes. As a means of contextualising these worlds’ decline, our explorations were supplemented with an engagement with promotional material, forums, websites and advertisements for their respective sites.

Our chosen approach for this project was autoethnography. Such approach means that we are using our own embodied engagement, personal experience and reflexivity to understand these worlds.[10] This focus on our own experiences meant that we did not engage with the small amounts of people still present in *Twinity* and *Active Worlds*, who were usually gathered together in one or two rooms or spaces, leaving the rest of the world empty. It was the experience of traversing these empty spaces that we wanted to convey. Following writers such as Kathleen Stewart,[11] we suggest that documenting an affective, embodied experience of these places was the most appropriate way to capture their mood or atmosphere, telling us more about them and their significance than a more objective, abstract discussion of their contents and features.

We also recognise that our embodied experience of these virtual places, objects and landscapes are complicated by engagement through material and immaterial interfaces of screen, keyboard and software, what James Ash refers to as an ‘interface envelope’.[12] Such interfaces make possible our presence in these worlds and shape our experience of them. As Ash points out, they create novel sensory experiences, such as the synaesthesia of touch and vision, through the physical movements of hands on keyboards and controllers determining what ones sees on screen, or the haptic experience of texture experienced through visual effects such of movement or brittleness rendered on screen.

In the case of virtual worlds, interface envelopes tend to prioritise ‘sociability’ through the prominence of chat windows and avatar customisation, and exploration through the ability to jump or teleport from one place, room or world, to another. Access to currency and the ability to shape or build objects and environments are usually also present in the interface. Such priorities come at the expense of the kinds of avatar movements and navigation available to more typical (and well-known) gaming interfaces which prioritise speed, agility, gameplay actions and access to weaponry

in their experiences. By comparison, virtual interfaces are slow and tedious. One can 'fly' in *Twinity* and *Active Worlds*, but only at a walking pace, and *Blue Mars* only allows one to walk at a slow speed. Avatars were not meant to run and leap around these places, but talk, dance, explore, shop and build.

As Ellis and Bochner[13] suggest, 'Autoethnography wants the reader to care, to feel, to empathize, and to do something'. Our aim with this article is not only to bring the notion of 'digital ruin' and some of its features into geographic discourse but also to foster an appreciation of these spaces, and the time, effort and creativity that went into creating them. We want geographers and others to visit them, or similar abandoned digital spaces, and begin to see the Web not only as a space of multitudes, big data, algorithms and networked infrastructures but also as a space of wasted effort: of personal projects, human relationships and fledgling communities which have been subsequently abandoned or neglected. We would also like readers to perhaps be a little sad that we no longer strive to create utopias on the Internet.

From (Post)-industrial ruins to digital ruins

Contemporary landscapes of post-industrialism and de-industrialisation have inspired a host of recent work on ruins largely based in, but not exclusive to, cultural geography, and upon which this article draws inspiration. Of note here in particular is the work of Tim Edensor.[14] Taking a lead from Walter Benjamin's approach to the study of modern life, Edensor sees in the materiality of industrial ruins and their discarded contents the manifestation of the myths of 'progress' and 'prosperity' that surrounded the development of these spaces in the modern industrial era of capitalism. For Walter Benjamin, the ruins of the modern city reflected a tension between the ascending dreams of their creation and the reality of everyday survival.[15] For Edensor, the appreciation of such ruins allows us to question the ideology of neo-liberal global capitalism which consigned these spaces to irrelevance and blight and which continue to transform our towns, cities and livelihoods. As such, they stand as a testament to capitalism's failings, especially the sheer waste of places, materials and people.[16]

Indeed, much of this work[17] portrays industrial ruins as a telling reminder of 'the hope and hubris of the futures that never came to pass'.[18] In that respect, industrial ruins are the physical articulation of a failed utopian vision of the promise of abundance under industrial capitalism. At the same time, what becomes abundantly clear through the presence of the industrial ruin is that the process of ruination is endemic to capitalism itself. Marx and Engels,[19] for instance, used the phrase 'all that is solid melts into air' to describe how the capitalist system is in a permanent state of upheaval, continually revolutionising itself.[5] Thus ruins demonstrate, especially in capitalism, both production and destruction simultaneously.[20] This of course recalls Joseph Schumpeter's notion of 'creative destruction', the 'perennial gale' which is the primary force for 'progress' in capitalism.[21]

Other contemporary ruins literature has emphasised the sensuousness of the material contextualisation of space largely in terms of the phenomenological experience of decay, disorder and blight.[22] Such work has also attempted to capture the affective elements of these spaces through concepts such as 'ghostliness',[23] 'haunting',[24] as well as drawing on elements of melancholy and nostalgia,[25] and, in general, the experience or memory of a past recent enough to still have a presence.

Bissell[26] and DeSilvey and Edensor[27] highlight the potential of industrial ruins as sites of resistance. Bissell suggests that industrial ruins, because of their liminal, unregulated/unsurveilled quality, allow one to understand and experience spaces on more sensual, intuitive and affective levels, offering a 'Lefebvrian opportunity' to engage in space with and through the body, as opposed to the

regulation and control implicit in the 'abstraction' of everyday urban space. Similarly, DeSilvey and Edensor see in these spaces of disorder the potential for resistance to the oppressive spatial homogeneity and control implicit in the contemporary urban experience. Thus, industrial ruins contain the possibility for alternative conceptualisations and uses of space in a way that digital ruins, with their strict spatial order maintained through passwords, perhaps cannot.

With this in mind, what can *digital* ruins tell us that industrial ruins cannot? First, industrial ruins, to a greater or lesser extent, are a part of everyday life. As Edensor[28] points out, they often feature in our commute to work, a telling reminder of the occupational lives of the past, endemic features of the 'zones of transition' of our inner cities, and a dominant feature of the larger landscapes of post-industrial towns and former industrial heartlands, such as the north of England or the 'rust belt' of America. Their preservation or destruction is thus often linked to the framing of a wider historical narrative and spatial identity formation. In his 2017 inauguration speech, Donald Trump hyperbolically played upon these images when he commented upon 'rusted out factories, scattered like tombstones across the landscape of our nation'.

By contrast, where our journey to work often exposes us to the abandonment, decay and transition endemic to the capitalist city, the abandoned places of the Internet get easily bypassed, rarely allowed to reveal their fate. Digital ruins are an absent presence. On one hand, these places are often only a few mouse clicks away. Yet at the same time, they are almost completely absent from the contemporary negotiation of a web which has become coalesced through the algorithmic regulation of its traffic. Such algorithmic regulation and perception management ensure that we almost never accidentally stumble upon these landscapes. They need to be sought out, either through active curiosity and exploration, or out of memory and nostalgia for one's Internet activities of the past. Virtual ruins do not confront us as part of our everyday spatial practice unless we want them to.

In this respect, they are more akin to the abandoned mining towns of Canada, such as Uranium City, Saskatchewan, established in 1952 in the midst of the Cold War lust for uranium, reaching a peak of almost 5,000 persons in 1982, and now with only 201 people milling among abandoned houses and decaying infrastructure. Perhaps even more accurately, Kitsault, a molybdenum mining town in northern British Columbia, established in 1979 with 1,200 residents (catered for with a shopping mall, swimming pool and bowling alley) and evacuated 18 months later after a price crash of the hard-to-pronounce metal. Kitsault, unlike Uranium City, has been maintained by a speculative investor. Streetlights still come on at night, and lawns are still mowed. It expects people to return. One senses that expectation while exploring digital ruins: the retail shelves full of virtual consumer goods, or the virtual land still for sale or rent. All belie expectation that one day they will be rediscovered or reborn. After all, *why else would they still be there*?

While industrial ruins are a hallmark of the excess of materiality of the industrial age, digital ruins are, unsurprisingly, made up of immaterial virtual objects, and thus this research is placed within the 'digital turn'[29] of Geography, as a space of the digital, with its own landscapes and phenomenological experiences. For example, their virtual nature means that digital objects and landscapes thus do not occupy specific places in a world space and have a unique quantum quality of being both here *and* there. The experience of excess materiality in the industrial ruin is replaced by a more complicated set of engagements with virtual objects and landscapes through material and immaterial interfaces of screen, keyboard and software.[30]

As Joohan Kim[31] points out, digital objects may not be material, but they have many of the properties of material 'things': such as durability and a kind of spatial extension. What Heidegger called 'thing totality' and/or 'selfsameness'. Paul Leonardi[32] argues similarly that digital objects, while not possessing materiality in a physical sense, possess the qualities of 'practical instantiation' and 'significance'; thus achieving a materiality not through their physical nature, but in how they

are perceived of and used. At the same time, digital objects have a number of ‘un-thing-like’ qualities. Because they are not physical, they have no temporal extension nor duration with objective time, so they do not age in the same way that material objects and structures, such as buildings, age. James Ash points this out when he suggests that game worlds have no ‘space’ or ‘time, merely processes of ‘spacing’ and ‘timing’ which emerges through the relationships between bodies, objects and interfaces.[33]

However, what these abandoned virtual worlds demonstrate is a particular kind of temporal stasis. They do not ‘age’ as much as they become out of date, precisely because they do not change. Outside the abandoned world, time marches on. Software changes, aesthetic tastes and styles change, players’ expectations of, for example, interface quality, speed or game playability change. Links to external websites are broken when those websites disappear. Even legal regulation changes.[34] Digital ruins are a kind of time capsule which demonstrate not how much they have aged, but how much we have. While they may possess some elements of decay, the overall experience of these places is dominated by their preservation.

Thus, when we engage with virtual worlds, we navigate them with a preconceived understanding of their digital permanence. Even when a world’s structural assets become outdated in relation to contemporary real-life design, the structures themselves that make up these spaces do not present signs of decay due to time or abandonment. This is a relevant part of the overall experience of digital ruination, a process of ageing which remains at odds with the varying degrees of quality in the constructions themselves. In other words, the world ages because our expectations of navigating them have evolved. Thus, added to the balance between the presence and absence of other players within them, the experience of digital ruins is marked by a mechanical abandonment too, and our limited interactions serve as a constant reminder of both the speed with which digital platforms have evolved and how disposable these can be fated to be.

Their infinite reproducibility adds to this lack of space and time, contributing, on one hand, to their sense of permanence while always suffering the fragility of complete non-existence at any moment. Digital objects and spaces have the unique ontological quality of either enduring forever without ageing or simply ceasing to exist without any remnant. There is no ‘in-between’ status of decay or of incompleteness (becoming) we traditionally associate with ruin. Their existence is tenuous, and therefore, when we navigate digital ruins, it is always under the implicit understanding that this time could be the last.[35]

The phenomenality of digital ruins: pristine abandonment

On the surface, ‘ruin’ would seem to be an inappropriate term to describe these abandoned but pristine places. Ruin usually refers to the state or process of the physical destruction or disintegration of something, etymologically speaking, a ‘collapse’. For example, a castle is considered a ruin when it is abandoned and in a state of physical decomposition. Industrial ruins, such as abandoned factories, are considered so again because of their abandonment but also their physical state of decomposition and lack of ‘working’. As such, we must also clarify that a ‘ruin’ has been made so by a *process* of discontinuation of its primary functions or status.[36] This means that ‘ruin’ is a tag anchored by an assumption of functional abandonment.

A ruin, rather than mere spatial decay, therefore suggests a use of space that, while still able to mark its presence, exists within a context that has evolved beyond its need to undergo a process of repurposing. Ruins are not so much abandoned spaces as places which have abandoned their contextual utility, their narratives of intent, their ability to produce specific experiences tied to their original structures and vice versa. This idea is carried over to digital ruins too, though slightly transformed to take into account the digital world’s persistence through time. If we take ruins to be

about a lack of utility, then these can be clearly visible in user-generated social content, once aimed at mass crowds and now empty. Ruination is not only a physical state but a process of destruction. These places, though not in physical decay, are not what they once were. Their populations have dwindled, their economies are dying or are already dead and their spaces are largely abandoned. In digital contexts, the lack of time (particularly in the form of decay) within the digital ruin means that we traverse *fully functional* towns, cities, buildings and other endlessly variable landscapes on our own. We expect abandoned places not to work: to rust; to be broken; to be gutted of everything of monetary and sentimental value.

Moreover, virtual ruins differ in terms of their sensory experience from actual ruins. The experience is based on the primacy of vision. The complex soundscapes, smellscapes, tactility and proprioceptive movements encountered by Edensor[37] or Sumarjoto and Graves in passages such as

> The middle, memorial section of the museum is dusty, dirty and exposed, with feathers and bird droppings thick in some areas, walls unpainted, windows covered with grime and no heating or cooling in the most open parts of the building. The rusting fittings, walls streaked with damp and derelict interiors nevertheless combine in a sensorialy rich environment, with a very particular aesthetic which is both spooky and haunting[38]

are replaced by a screen interface into an often exceedingly rich, complex and importantly *deliberate* visual world. Unlike a pigeon nest or the smell of rat urine in a rusting factory, everything in the virtual ruin has been placed there by the creator and, apart from guestbooks (in *Twinity*, one can sign a guestbook and leave comments), its narrative remains untouched. Sounds, when they do occur, reminds one of the intentionality of the space. The experience of birdsong, or the sound of one's own footsteps, for example, become pleasant surprises which enrich the experience while reminding one that everything has been placed there deliberately, putting the onus on the observer to understand why things are the way they are.

When they are in pristine condition, we question why they became and remain abandoned. The result is an uncanny landscape haunted by the presence of past intents, resulting from the tension of who should be here still: the undying traces of digital social spaces, Bots and Non-Player Characters trapped in their temporal vacuum and the emptiness of a pristine world.

In *Blue Mars*, 'Tharsis Estates' is a beach-side community reminiscent of the Florida coast. It is an idyllic beach community which describes itself as 'a mixed use shopping and residential community' in which 'building lots and shop space are available for lease'.[39] It contains a small pier and is filled with atmospheric seagull cries. Here, one could lease land, build a home and even start a retail enterprise in the local mall. It proposed a self-contained community, which provided its residents with the chance of an affordable dream home, entrepreneurial opportunities and community building. Today, one designer shoe outlet, 'Firion Designs' (Figure 1), caters to this suburban ghost town, its shelves full of shoes still for sale, but in a currency that can no longer be acquired. In material circumstances, 'Firion Designs' shelves would be empty: stock would have been moved on to other outlets, or sold off at a discount, or looted in abandonment.

The simulation of a real-life shop window also simulates its failure. In the real world, those shelves would be empty of shoes. *Someone would have wanted them*. Present here is an uncanny recognition of the fragility of real world structures with equivalent functionality. Thus, digital ruination is also an experiential concept; the experience of ruin is a feeling mediated by the recognition of real-life loss of value. *Nobody wants these things*.

In another example, there is a large world within *Active Worlds*, called 'America' (Figure 2). With a nod to Baudrillard, America is a fully functional theme park. It aimed to provide a mass-socialisation space framed around leisure activities. There are working rollercoasters, donkey

Figure 1. Firion Designs (*Blue Mars*).

rides, race tracks, a fun house, bumper cars . . . all the trappings of any theme park, including midway with playable fairground games, some of which provide cheering crowd noises when you win. The fun park shows, quite literally because they still function, the traces of the actions and possible behaviours of the people who once occupied them. In that sense, it provides the essence of what Derrida referred to as 'hauntology', marking the agency of those which are no longer.[40] This was a place to be enjoyed as a space and admired as a construction. But now the dominant experience is tied to its overwhelming emptiness, and the accompanying soundtrack, which could speak of kitsch and fun, becomes forlorn, ironic and melancholic simultaneously, giving a haunting quality – a dreamlike experience of the uncanny, not because we are unable to understand the process by which something gets abandoned or unused, but because it *can* still be used *as well as ever*. Its social purpose underlines a feeling of emptiness while also projecting the hauntology of imagined presences, not only of a past, but of a future that could have been, had the world succeeded.

Digital ruins as existential spaces or 'the shock of disconnection'

James Ash[41] argues that images create an existential spatiality, where content is made sense of and 'depth' is created through bodily knowledge and capacities which already exist in worlds of human meaning. He uses Heidegger's famous discussion of Van Gogh's series of muddy shoe paintings to describe how images open up worlds of 'equipmentality' and 'concern'. For Heidegger, the shoes are not merely aesthetic surfaces, but open up possible worlds to us on the basis of our understanding of *what shoes are for*. So we imagine the shoes being used, worn, in Heidegger's case, by a peasant woman toiling the land. A world of work, toil, hardship and even hunger is brought to us through the painting because we experience the shoes not just as surfaces, but as *things to be used*. This brings us closer to the 'truth' the painting tries to represent and gives the image meaning.

As Ash suggests, equipmentality abounds in video games, where the context of completing goals and objectives, the 'push-pull' of events or 'eventual navigation' within the narrative of the game creates a context and meaning for a player's actions, as well as the equipmentality of

Figure 2. America fun park (*Active Worlds*).

the objects and landscapes in which a player is thrown. However, the existential space opened up by an exploration of abandoned virtual worlds is one in which the production of these possible worlds of meaning is cut off by a lack of equipmentality or a 'push-pull' of events. Even when they were populated, virtual worlds provided little in terms of specific goals and objectives outside of 'meet people' or 'express yourself'. In their abandoned state, they lack even these vague ambitions and their interfaces offer little, if any, place descriptions. We are left with the task of trying to make sense of these spaces without any objectives or events happening, without people to meet or talk to and ultimately without narrative context. This experience, what we refer to as a 'shock of disconnection', was particularly apparent when 'landing' in a new space for the first time.

For example, upon landing in 'Venezia' in *Blue Mars*, we are greeted by a female voice with an American west-coast accent, high in the audio mix:

> This is Terry Paulding, and welcome to the Paulding and Company kitchen. Today I'm going to show you a really fast, easy and wonderful hors d'oeuvre or snack that you can make during fig season . . .

Terry's warm voice giving us cooking instructions stands in stark contrast to the loneliness of *Blue Mars*. It is welcoming, haunting and aesthetically confusing, all at the same time. The Venezia landing pad aesthetic is already an odd hybrid combination of old-world Mediterranean villa (complete with fountain and pond and shaded with a dominant cream-coloured pallet) and futuristic Mars colony architecture, with a small gothic clothing retailer thrown into the mix. If the world were populated, this may be confusing, but the juxtaposition of these disparate elements would, through its being used and through potential conversations with others, have been somewhat resolved. What remains, instead, is the tension between our assumptions of its purpose and the imaginary narratives of its pastness. The fig recipe is a puzzle which will remain unsolved, and this future inexplicability creates a sense of unease in the present. The banality of a cooking programme

Figure 3. Van Gogh (*Active Worlds*).

becomes an experience of the uncanny, largely because of the incompleteness of the world opened up to us that can never be reconciled.

'Van Gogh' in *Active Worlds* is a world which, upon arrival, one realises is a town space modelled after Van Gogh's various paintings, including Café Terrace at Night, within a surrounding landscape painted in the style of Wheatfield with Crows. Recordings of town street ambient sounds welcomed us. These became louder and more focused as we approached the café area, where the screen darkens to night-time progressively on approach to communicate the café's interactivity to players and set a particular ambiance. Although filled with empty tables and chairs, the café presents the sounds of crowds and the surrounding town life, including birds and wind. At first taken aback by the sheer amount of work it would have taken to build this world, we were then puzzled by the inclusion of a Norah Jones backing track, and a small audio tutorial on Van Gogh himself. This sense of both recognition and disorientation was common in our arrivals to new worlds like this one. The sometimes barely audible soundbites and inconsistent visual cues without the presentation of clear gameplay or player objectives led us to an exploration without a consistent narrative context. In this case, while we understood the intent to recreate artwork in a digitally liveable space with a clear referent, the unexpected sonic elements and confusing lack of gameplay direction meant that our attention was mostly drawn towards its emptiness: the incongruence of suggesting crowds, and the stock birdsong which we knew should have remained a background loop to the social interactions that could have once taken place here. It did not help that *Active Worlds* does not offer contextual information prior to entering a world aside from its title, which adds to this initial bewilderment (Figure 3).

Again, experiencing such places provides a disturbing quality of the inexplicable or mysterious: spaces and objects that do not quite make sense as consistent wholes (their contextual and experiential consistency undermined by their lack of use or purpose for being there apart from exploration). The lack of contextual explanation, the fact that there is no one around who can provide an explanation as to why things are the way they are, or even a reassurance, grants the place the uncanniness and haunting quality of a dream.

Because of the impossibility of immediate understanding, and the lack of consistent referents, our experiences of abandoned worlds were governed not only by the alienation we felt by the absence of players but also this 'shock' of disconnection due to the absence of a consistent over-arching narrative which would have otherwise offered us clues to clearly imagine the actions and interactions within them. The drive to understand, to make sense of these places, with their odd juxtapositions of pristine objects and sounds provides a form of existential angst which is surprisingly taxing as we move back and forth between experiences of wonder, puzzlement and the realisation that these spaces have become pointless. The worlds opened up to us are framed by the presumption that they were meant to be used and appreciated socially. However, we can never be sure of this, just like Heidegger could never truly be sure of whose shoes Van Gogh painted. Maybe Heidegger was wrong, maybe they were Van Gogh's shoes.[42]

Utopias of digital abundance

Much of the discourse around the Internet, both in academic circles and in wider popular discussions, was framed around the opportunities that a dematerialised online culture, which moved beyond material bodies and structures, could provide for both the realisation of the self in a libertarian sense and for more just and tolerant communities. Majid Yar[43] summed up this techno-romantic utopianism as a romantic striving for imagination, creativity and unity through an embrace of the technological (virtual). This romanticism was often contrasted with what was seen as the 'failed' project of enlightenment modernity, which continued to be plagued by inequality, discrimination and intolerance of difference and had created increasingly over-managed, over-secured and racially and socially fragmented material urban spaces which stifled individual freedom, creativity and expression. The promise of the virtual stood in stark contrast to the latter and promised to transcend these failures through a release from the material.[44] The early work of Sherry Turkle[45] reflected this in terms of the freedom to depict multidimensional aspects of the self, and Howard Rheingold[46] optimistically depicted new forms of possible communities which might have freed us from the troubled and dysfunctional communities of the offline world.

This utopian vision of virtual worlds was based on harnessing the creative capacities of their residents as prosumers. As Bonsu and Darmody suggest in their discussion of *Second Life*, 'Consumers are invited to bring their knowledge and skills to bear on playfully creating a world of their dreams'.[47] Indeed, the idea of almost limitless creativity and self-expression, not only in terms of what one could build with digital materials (such as homes, cities, environments, businesses) but also in terms of the building of networks, friendships and relationships, set up the virtual world as an ideal space for self-fulfilment and self-actualisation. In many respects, this is the ideal terrain to actualise the creative and productive instincts of humans, what Marx referred to as 'species being':[48] the impulse to build, create or transform matter into things which carries on in humans even after our physical needs are met. For Marx, the essence of humanity was the desire to imagine, plan and build. Such also was the ambition of virtual worlds, as reflected in promotional material of the time. For example, *Second Life* used slogans such as 'Your world – explore – share – create – your world – your imagination'[49] to emphasise the creative and emancipatory dimensions of online existence.

Abandoned virtual worlds are filled with the remnants of these ambitions. Take, for example, the thousands of homes that people made, decorated and abandoned. In many respects, it makes no sense for an avatar to have a home, yet the building of dream houses was a central theme throughout the marketing of 3D virtual worlds. Communities are made up of homes, and homes are the locus for relationships as well as signs of material success. The ability to create an ideal home space is arguably fundamental to visualising and selling any utopian vision, or individual

Figure 4. Promenade Club (*Twinity*).

dream. 'Promenade Club' (Figure 4) in *Twinity*, with its contemporary beach house stylings and modernist patio and pool area expresses how such ambitions can be realised. This is a place to be sociable, to bring people. Several appreciative comments in the guestbook are hauntological testaments to this. This place, in virtual terms, was a success. It was designed well and people came to visit.

Likewise, 'Chameleon's Den' (Figure 5), a sumptuous Italian Villa in *Active Worlds*, demonstrates these ambitions in a more grandiose fashion. Its grand hall, guest house, fountains and swan-shaped boat perhaps speak to Nouveau-riche sensibilities. There is, due to its current emptiness, now a sense of peace conveyed by one's ability to navigate it unhindered, though this peacefulness is interrupted by the presence of a series of photos of family and friends, and thereby a feeling of trespassing. These photos add a touching intimacy to the expansive rooms and haunts the space with the reminder that behind these absent avatars are people who invested not only time but emotion into these places. The fact that these photos too were abandoned leaves us to speculate on the meaning and circumstances of their abandonment. This constant decoding of intent is how we experienced abandonment in such contexts, and, as visitors, we simultaneously recognise the implied utopic narratives within these creations as well as feeling powerless to overturn their fate.

Another part of the vision for techno-utopians was a pluralistic cyberspace whose immaterial bodies could be free from the structures which repress (particular) identities and material bodies (in general) in all kinds of ways. The expression of sexuality in particular became, and still is, a major part of online culture. Virtual worlds allowed people to create safe spaces for such expression. Whether as homes or nightclubs, marginalised sexual spaces were symptomatic of an online utopian vision of freedom, diversity and acceptance. This is articulated in homes and spaces, which, certainly in some cases, still present a glimpse into the personal importance of

Figure 5. Chameleons Den (*Active Worlds*).

Figure 6. Lesbian Home (*Twinity*).

these places to those who perhaps were unable to cultivate such identities offline. Articulating these identities in a digital space also acknowledges the importance once given to such spaces, as personal representations of identity through building complex structures marks a sign of authorial presence and self-expression – as well as the utopian ideal of digital freedom. Here, 'Lesbian Home' (Figure 6) in *Twinity* is a modestly decorated home which celebrates and forcefully demonstrates an identity through the combination of LGBT (lesbian, gay, bisexual and transgender)-friendly images and icons, the insertion of (presumably) a photo of the occupier of

Figure 7. ARAF (*Blue Mars*).

the home and a guestbook signed by appreciative friends and hopeful partners. In another example, 'Forte', in *Active Worlds*, stands as a safe space and information centre created to assist gay Christians who have not yet come out to their family and friends. Its generous offerings of help and acceptance lie in wait and remain unappreciated and unutilised.

This perceived freedom to articulate identities also implies the creation of places which sought to provide a transformative experience in the appreciation of artwork, and the embracing of the possibilities of digital space as an open art form – advancing the utopian belief in the untapped potential for spatial expression (and thus the provision of experiences) in digital worlds. For example, ARAF (Figure 7) is a sumptuous world created in *Blue Mars* by animator and digital artist Sivan Okcuoglu, based on the drawings of Turkish illustrator, Bahadir Baruter. Exploration of this world alone could take hours, filled with amazing vistas and spectacular detail.

Similarly, 'New Venice' (Figure 8), also in *Blue Mars*, is a detailed and stunning city, which includes waterways, soundscapes and mountain vistas. It is almost therapeutic, containing wind chimes, the wavering of the ocean, dynamic shadows and lighting which captures realistic tree leaves swaying, suggestive of a light breeze. Touring these impressive spaces in isolation creates moments of joy, as though one has discovered an unknown land whose reason of being remains a question answered only by our unfettered assumptions. However, this is followed by the sobering realisation that these spaces now lie abandoned despite the herculean effort and creative energy that some of these constructions must have required. One is reminded of the waste, and the hundreds of hours of toil, all of it seemingly for nothing.

'C/O Berlin' in *Twinity* more modestly demonstrates the ambition to increase the accessibility of art through the use of virtual space. A virtual art exhibition which was meant to complement a real-life show, the space emulates a 'real life' art gallery, where thumbnail images of a contemporary 'real world' exhibit line the walls. Clicking on an image enlarges and provides additional information. These actions serve to augment real-life expectations of what an exhibition feels like, leading to a once novel way of interacting with art and photography which have now been bypassed by today's image sharing social media platforms.

Figure 8. New Venice (*Blue Mars*).

What haunts these places are the utopian dreams of their builders. Their pristine nature makes more evident the ambitions of those who saw in the Internet the ultimate projection of the Platonic/Cartesian ideal of a society in which minds were liberated from the prison of the material and the bodily: from lives of toil, from racism and heteronormativity, and from material deprivation. These spaces had the potential to provide unshackled freedom to express one's intellectual, artistic and social capacities to the full. Every classroom, every lavishly decorated home, every museum and every nightclub dance floor represent someone's desire to exceed the material, the bodily and social limitations of contemporary life. They are a reminder that people once believed that the Internet might give us a better future, and were willing to invest their time, physical and emotional labour to build these places and these communities.

Conclusion: digital ruins, abundance and the abandoned landscapes of prosumerism

> In the welcome area of Active Worlds, a large billboard proudly proclaims 'Every one of the 13.7 million things you see here were built by the 179,000+ citizens of AlphaWorld'. (Ethnographic notes by authors)

Marx-inspired work on digital culture[50] has been articulate in its critique of what is often referred to as the prosumership[51] of Web 2.0. For example, many authors[52] have recently argued that the leisure and social practices associated with social networking, in the form of purposefully creating content (prosumership), as well as inadvertently creating personal data through the use of these sites, are a form of unpaid 'immaterial' labour which is commodified by the owners of these sites.

Virtual worlds can be seen as early, and perhaps even exemplary, landscapes of prosumerism and immaterial labour under digital capitalism. As Bonsu and Darmody[53] suggest in the context of *Second Life*, virtual worlds celebrate the self-expression, self-actualisation and sociality possible in these spaces while at the same time co-opting and appropriating the results of the unpaid creative

labour which sustains them. These cooperative efforts of community building became intertwined with the financial enrichments of the companies who hosted these worlds, minimising their investments by encouraging users to invest their time, creative energy, emotional attachments and even their own money into building these spaces.

While, on one hand, the lure and promise of prosumption centred around the freedom and creativity of the prosumer, on the other, this also allowed companies to easily step back from these worlds as they failed, leaving it up to the residents themselves to make a success of these places, if they could,[54] or to simply abandon them and move on. This 'trap' can be seen in the reflexive commentary of a virtual citizen of *Active Worlds*, who, while addressing the issue of the declining population of the site in 2012, observed,

> Every citizen and tourist that uses Active Worlds on a regular basis does so as an investment of time and effort in the various builds and friendships they have. If we are to keep what we have operational in the long run we have to make it profitable to the company to do so even if they will not assist.[55]

In that sense, we can frame the production of digital ruins as an inevitable outcome of digital prosumerist practices. A *material* economy of scarcity is largely built upon efficiency and rationality.[56] In order to make a profit, one must manage resources effectively. Even at the height of industrial capitalism, managing material costs and avoiding overproduction and waste were central concerns to any venture. Digital spaces stray from this logic. It is easier to build a new shop, new objects, new homes or new spaces, than it is to rebuild, change, edit or transform what already exists. In a digital landscape, where prosumers are both unpaid and very productive, there is no concern about how much is produced. Provided there are servers to maintain it, and enough prosumers motivated by personal expression, community building or entrepreneurialism willing to produce goods for free, abundance will be a key feature. There will always be more land to sell, more houses to build and sell, more fashion to create and sell, more experiences to experience. This seemingly infinite space to build and the cheapness of designing infinitely reproducible objects (provided one puts in the time to do so) inevitably leads to overproduction, over-abundance and subsequent ruin.

The digital ruin represents the utopian promise of the digital, built on a premise of abundance: on limitless speculation, creativity, reproduction, prosumption, relationship building and self-realisation, unhindered by material limits. Yet, at the height of this optimism, and faith in a future of digital abundance, these fledgling utopias failed. One by one, we have turned our back on them, as the creative destruction of the material became mirrored in the creative abandonment of the digital. The multiplicity of empty landscapes and spaces (and the few users who may be left hanging on in these multiplicities) now project a mournful nostalgia not of what was (as these places are still here and functioning), but what can never be. The timelessness of these digital ruins means that we now have failed utopias we can return to and witness how thousands of hours of creating, socialising, entrepreneurship, relationship and community building have only come to fruition as empty, hollowed out spaces that will eventually, and inevitably, cease to exist.

The fact that such efforts and investments can be abandoned and forgotten so easily reveals the blasé nature with which we encounter (and perhaps embrace) the waste and overproduction of the digital. The Internet is a space littered with one successive phase of abandonment after another: abandoned blogs, games, instant messaging services, social networks and other communities of various types. It is telling how far back in the past these quite recent online fads, such as blogging, *MySpace, Friendster* or the peak of *Second Life* seem. Perhaps only by traversing these spaces in their abandoned states can we truly appreciate this social reality of waste and overproduction involved in their creation. Virtual worlds are not the only digital ruins, but merely one phase in a

series of virtual endeavours in which people invest time, emotional effort and creativity, and from which they move on.

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Notes

1. <https://en.wikipedia.org/wiki/Blue_Mars_(video_game)>
2. For example, T. Edensor, *Industrial Ruins: Space, Aesthetics and Materiality* (Oxford: Berg Publishers, 2005).
3. For example, D. Pinder, 'Arts of Urban Exploration', *cultural geographies*, 12(4), 2005, pp. 383–411; B. Garrett, 'Undertaking Recreational Trespass: Urban Exploration And Infiltration', *Transactions of the Institute of British Geographers*, 39(1), 2014, pp 1–13.
4. E. Castronova, *Virtual Worlds: A* Firsthand *Account of Market and Society on the Cyberian Frontier* (CESifo Working Paper Series No. 618), 2001, p. 39, <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=294828>
5. E. Castronova, *Synthetic Worlds: The Business and Culture of Online Games* (Chicago: University of Chicago Press, 2005).
6. G. Ritzer and N. Jurgenson, 'Production, Consumption, Prosumption: The Nature of Capitalism in the Age of the Digital "prosumer"', *Journal of Consumer Culture*, 10(1), 2010, pp. 13–36.
7. Businesswire, 'Global Massively Multiplayer Online (MMO) Gaming Market–Forecast to Reach $44.6 Billion by 2022–Research and Markets', *Businesswire.com*, 2017, <https://www.businesswire.com/news/home/20171115005641/en/Global-Massively-Multiplayer-Online-MMO-Gaming-Market>(21 December 2017).
8. Some examples include *Active Worlds* (1995), *Entropia Universe* (2000), *There.com* (2003), *Second Life* (2003), *IMVU* (2004), *Kaneva* (2006), *Twinity* (2008), *Blue Mars* (2009), *Third Rock Grid* (2008), *InWorldz* (2009), *Your Alternative Life* (2009), *Gojiyo* (2010), *Sine Space* (2016), Teen-oriented virtual worlds such as vSide (2006), Smallworlds (2008), Onverse (2009), Club Cooee (2009), and adult-oriented worlds such as Utherverse/Red light Centre (2002), Eros Island (2012).
9. See, for example, T. Kindynis, 'Urban Exploration: From Subterranea to Spectacle', *British Journal of Criminology*, 57(4), 2016, pp. 982–1001; Pinder, Urban Exploration; Garrett, recreational trespass'. See also T. Edensor, 'Walking through Ruins', in T. Ingold and J. Vergunst (eds) *Ways of Walking: Ethnography and Practice on Foot* (Aldershot: Ashgate, 2008), pp. 123–42 on 'walking' ruins, p. 383.
10. T. Adams, C. Ellis and S. Jones, 'Autoethnography', in J. Matthes (ed.) The International Encyclopaedia of Communications Research Methods (London: John Wiley and Sons, 2017); C. Ellis and A. Bochner. 'Analysing Analytic Autoethnography: An Autopsy'. *Journal of Contemporary Ethnography*, 35(4), 2006, pp. 429–49.
11. K. Stewart, *A Space on the Side of the Road: Cultural Poetics in an* '*other*' *America* (Princeton: Princeton University Press, 1996); K. Stewart, *Ordinary Affects* (Durham: Duke University Press, 2007).
12. J. Ash, *The Interface Envelope* (New York: Bloomsbury, 2015).
13. Ellis and Bochner. 'Analyzing Analytic Autoethnography', pp. 433.
14. T. Edensor, 'The Ghosts of Industrial Ruins: Ordering and Disordering Memory in Excessive Space', *Environment and Planning D: Society and Space*, 23(6), 2005, pp. 829–49; Edensor, Industrial Ruins; T. Edensor, 'Sensing the Ruin', *The Senses and Society*, 2(2), 2007, pp. 217–32; T. Edensor, 'Mundane Hauntings: Commuting Through the Phantasmagoric Working-Class Spaces of Manchester, England', *cultural geographies*, 15(3), 2008, pp. 313–33.
15. S. Boym, 'Ruinophilia. Appreciation of Ruins', *Atlas of Transformation*, 2011, <http://monumenttotranformation.org/atlas-of-transformation/html/r/ruinophilia-appreciation-of-ruins-svetlana-boym.html> (10 May 2017).
16. Edensor, 'The Ghosts of Industrial Ruins'.

17. For example, Edensor, Industrial Ruins; C. DeSilvey and T. Edensor, ‘Reckoning with Ruins’, *Progress in Human Geography*, 37(4), 2013, pp. 465–85.
18. DeSilvey and Edensor, ‘Reckoning with ruins’, p. 468
19. K. Marx and F. Engels, *The Communist Manifesto 1848* (trans. S. Moore) (London: Penguin, 1967).
20. K. Dale and G. Burrell, ‘Disturbing Structure: Reading the Ruins’, *Culture and Organization*, 17(2), 2011, pp. 107–21.
21. J. Schumpeter, ‘The Process of Creative Destruction’, in J. Schumpeter (ed.) *Capitalism, Socialism and Democracy*, 3rd ed. (London: Allen & Unwin, 1950).
22. For example, Edensor, ‘Sensing the ruin’.
23. K. Battista, B. LaBelle, B. Penner, S. Pile, and J. Rendell, ‘Exploring “An Area of Outstanding Natural Beauty”: A Treasure Hunt Around King’s Cross, London’, *cultural geographies*, 12, 2005, pp. 429–62.; Edensor, ‘ghosts of industrial ruins’.
24. M. Degen and K. Hetherington, ‘Hauntings’, *Space and Culture*, 11(12), 2001, pp. 1–6.; T. Edensor, T. ‘Haunting in the Ruins: Matter and Immateriality’, *Space and Culture*, 11(12), 2001, pp. 42–51.
25. G. Millington, ‘Meanings, Materials and Melancholia: Understanding the Palace Hotel’, *Social and Cultural Geography* 6, 2005, pp. 531–50; A. Huyssen, ‘Nostalgia for ruins’. *Grey Room*, 23, 2006, pp. 6–21.
26. D. Bissell, ‘Inconsequential materialities: the movements of lost effects’, *Space and Culture*, 12(1), 2009, pp. 95–115.
27. DeSilvey and Edensor, ‘Reckoning with ruins’.
28. Edensor, ‘Mundane hauntings’.
29. J. Ash, R. Kitchin and A. Leszczynyski, ‘Digital turn, digital geographies?’ *Progress in Human Geography*, 42(1), 2018, pp. 25–43.
30. Ash. The Interface Envelope.
31. J. Kim, ‘Phenomenology of Digital-being’, *Human Studies*, 24(1–2), 2001, pp. 87–111.
32. P. Leonardi, ‘Digital Materiality? How Objects Without Matter, Matter’, *First Monday*, 15(6), 2010, <https://ojphi.org/ojs/index.php/fm/article/view/3036/2567> (22 November 2018).
33. Ash, The Interface Envelope.
34. For example, while this article was under review, the EU General Data Protection Regulation came into force. This meant that *Blue Mars* became inaccessible to Europeans because of the risk that data could be collected from someone using *Blue Mars* servers.
35. For example, see footnote above.
36. For example, Collins Dictionary more generally defines ruin also as ‘to injure or spoil’, or ‘loss of value or usefulness’.
37. Edensor, ‘Sensing the ruin’.
38. S. Sumarjoto and M. Graves, ‘Rust and Dust: Materiality and the Feel of Memory at Camp Des Milles’, *Journal of Material Culture*, 23(3), 2018, pp. 328–43.
39. Tharsis Estates download page, *Blue Mars*
40. M. Fisher, Ghosts of My Life: Writings on Depression, Hauntology and Lost Futures (Winchester: Zero Books, 2014).
41. J. Ash, ‘Emerging Spatialities of the Screen: Video Games and the Reconfiguration of Spatial Awareness’. *Environment and Planning A*, 41(9), 2009, pp. 2105–24.
42. M. Schapiro. ‘The Still Life as a Personal Object – A Note on Heidegger and van Gogh’. *The Reach of Mind* (Berlin: Springer, 1968), pp. 203–9.
43. M. Yar, The Cultural Imaginary of the Internet: Virtual Utopias and Dystopias (London: Palgrave, 2014).
44. Yar, The Cultural Imaginary.
45. S. Turkle, *Life on the Screen* (New York: Simon & Shuster, 1995).
46. H. Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (Cambridge: MIT Press, 2000).
47. S. Bonsu and A. Darmody, ‘Co-creating Second Life: Market – Consumer Cooperation in Contemporary Economy’, *Journal of Macromarketing*, 28(4), 2008, pp. 355–68, pp. 359.

48. N. Dyer-Witheford, ‘Digital Labour, Species-becoming and the Global Worker’, *Ephemera: Theory & Politics in Organization*, 10(3), 2010, pp. 484–503.
49. Secondlife promotional video, 2012, located at <https://www.youtube.com/watch?v=r74hkI-JcHY> (11 December 2016).
50. T. Terranova, ‘Free Labor: Producing Culture for the Digital Economy’, *Social Text*, 18(2), 2000, pp. 33–58; N. Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (Bloomington: University of Illinois Press, 1999).
51. G. Ritzer and N. Jurgenson, ‘Production, consumption, prosumption: The nature of capitalism in the age of the digital “prosumer”’, *Journal of Consumer Culture*, 10(1), 2010, pp. 13–36.
52. C. Fuchs, ‘Digital prosumption labour on social media in the context of the capitalist regime of time’, *Time & Society*, 23(1), 2014, pp. 97–123; P. Rey, ‘Alienation, exploitation, and social media’, *American Behavioural Scientist*, 56(4), 2012, pp. 399–420.
53. Bonsu and Darmody, ‘Co-creating Second Life’.
54. D. Zwick, S. Bonsu and A. Darmody, ‘Putting Consumers to Work: Co-creationand New Marketing Govern-Mentality’, *Journal of Consumer Culture*, 8(2), 2008, pp. 163–96; Ritzer and Jurgenson, ‘Production, consumption, prosumption’.
55. Active Worlds Newsletter, vol. 15, no. 2 (February 2012) by Lensman, <http://www.activeworlds.com/newsletter/0212/peacekeeper-tips.html> (6 October 2017).
56. G. Ritzer and N. Jurgenson, ‘Efficiency, Effectiveness, and Web 2.0: The Culture of Efficiency. Techonology in Everyday Life’ (New York: Peter Lang Publishing, 2009).

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