ROUTLEDGE ADVANCES IN GAME STUDIES

Fans and Videogames

Histories, Fandom, Archives

Edited by
Melanie Swalwell, Helen Stuckey
and Angela Ndalianis

Fans and Videogames

In order to better understand and theorize video games and game playing, it is necessary to study the activities of gamers themselves. Gamers are not only active creators in generating meaning; they are creators of media texts they share with other fans (including games, mods, walkthroughs, machinima, etc); and they have played a central role in curating and preserving games through their collective work on emulation, the creation of online archives and the forensic archaeology of code. This volume brings together essays that explore game fandom from diverse perspectives to reveal the complex processes at work in game fandom and its practices. Contributors aim to historicize game fandom, recognize fan contributions to game history, and critically assess the role of fans in ensuring that game culture endures through the development of archives.

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It is now less rare for cultural institutions to have some digital games amongst their holdings than when we first began working in this space. Two people who were early advocates of game history, collecting and preservation have also been constant supporters over many years. Andreas Lange's early recognition of the role of game fan preservationists first inspired our interest in the constellation of issues around videogames, fans and history since the early 2000s. Henry Lowood has steadily raised the visibility of digital game history and preservation, and we've benefited enormously from his leadership, wisdom and collegiality, over more than a decade.

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We feel fortunate to have assembled such a fine collection of authors, whose essays present a fascinating diversity of approaches to the nexus between fans, games and history. It has been a delight working with each and every one of them. In addition to those whose work appears in this volume, we are grateful to colleagues – too numerous to name – who have helped to shape our ideas through their feedback at seminars and conferences nationally and internationally.

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1 Introduction

Melanie Swalwell, Helen Stuckey and Angela Ndalianis

Whilst there has been a substantial amount of work on fan culture published over the past two decades, little of this addresses the videogame fandom phenomenon. What little work exists is almost exclusively focussed on the current moment, and on specific fandoms. Virtually none of it attends to the important roles of videogame fans in historic contexts, or fans' historical endeavours. Similarly, a great deal has been published within Game Studies over the past decade or so. Yet whilst many texts have focused on player culture, very few focus in any depth on fan culture as a phenomenon that has its own history and modes of practise, or the extent to which videogame fans might differ from other fan communities. We see this as a significant gap which demands critical consideration. Fandom in videogaming has a long history. It is time to recognize the impact and centrality of videogame fan communities – as a collective intelligence, as a pool of individual creators of games and as interested and engaged parties in the collecting and remembering of game history. This collection responds to these gaps, offering the first dedicated examination of the roles of fans in videogame history.

There have been significant academic writings focussed on the impact and centrality that fan communities play in games; however, this work has appeared in isolation in Game Studies or is located in texts addressing fandom across a number of media, including games. Few focus directly on game fandom. In addressing this academic gap, this anthology offers a historical and critical study of the nature of, and activities around, fandom in game culture. It also extends fan cultural analysis beyond its frequent collapse into, and association with, cultish audiences. The collection sits at the intersection of Game Studies and Fan Studies, each of which constitute large and complex bodies of knowledge. Here we present a brief overview of some of the key texts to situate this anthology within this scholarship, as well as to delineate the new areas of research that are examined.

Foundational texts about fandom as a practise that required new theoretical models include the influential texts by Henry Jenkins (1997, 2006), Nancy Baym (1999), Matt Hills (2002), and Jonathan Gray et al. (2007). Whilst establishing and expanding on fan theory, none of

these texts examine game fandom. Likewise, the Fan Phenomena series (Intellect/University of Chicago Press) focusses on significant fan subjects, predominantly in film, television and comics – such as Batman, *Star Wars*, and *Doctor Who*. Currently there are no titles in the series addressing games. More recent publications in the area have tended to offer examples from a range of media whilst also extending theories about fandom to digital media. For example, the texts *Participatory Cultures Handbook* (Delwiche & Henderson 2013), *Digital Fandom: New Media Studies* (Booth 2010), *Playing Fans: Negotiating Fandom and Media in the Digital Age* (Booth 2015), *Fandom Unbound: Otaku Culture in a Connected World* (Ito, Okabe & Tsuji 2012), *Bastard Culture! How User Participation Transforms Cultural Production* (Schäfer 2008) and *Fan CULTure: Essays on Participatory Fandom in the 21st Century* (Barton & Lampley 2013) all offer overviews of fan culture as it relates to film, television, otaku and comics, but they pay marginal attention to game fandom.

A number of texts that do examine game fandom are concerned more generally with player culture. James Newman's books (Newman 2004, 2008, 2012) offer different methodological approaches to the study of games and a few of the chapters examine gamer fan art and cosplay, walkthroughs, speed-running and recording and game play preservation. However, his primary interest is the gamer rather than the game fan – a distinction that Newman makes quite clearly. The Well Played book series (ETC Press) is similarly about the played game, rather than fan culture. There are also some examples of books about player activity that intersect with our interests but, again, the focus is more on the player. John Banks (2013) examines user-generated content, looking at the co-creative relationship between amateurs and professionals as a cultural and economic phenomenon, and whilst some of his findings intersect with our own, the book is less about fandom and more about the possibilities opened up by digital culture that impacts on the player's role and identity. Rene Glas' (2012) *Battlefields of Negotiation* and Hilde G. Corneliussen and Jill Walker Rettberg's (2008) collection *Digital Culture, Play, and Identity* analyse the multiplayer, online role-playing game *World of Warcraft* as a community-based game. These authors examine game design and how it encourages players to appropriate and shape the game, however – as is the case with Banks – they are more interested in evaluating the complex consumer-producer relationships that emerge in online gaming.

A number of authors have addressed aspects of the Game and Fan Studies nexus, for example, studies of machinima, modding, cheating, market convergence and the rise of the casual gamer, and forms of the expanded world of fan engagement with games such as cos-play (Busse & Gray 2011; Consalvo 2007; Lancaster 2001; Lowood & Nitsche 2011; McKee 2003; Newman 2008, 2012; Postigo 2007, 2010;

Sotamaa 2009). Whilst we recognise these contributions and build on the traditions of scholarship in both Game and Fan Studies, we also seek to stimulate a fresh engagement between these two inter-disciplines. Our specific concern with videogame history takes us into what is – somewhat surprisingly – quite new terrain, for both fields. As such, this book represents an exciting moment of initial inquiry into currently underdeveloped territory.

Fan Studies is a well-established area of study within Media Studies, and in our judgement is likely to play an increasingly significant role in future Game Studies scholarship. As noted, much of the extant work on fandom focusses on the fan's relationship with producers, and the fan's growing role as prosumer in the digital era. Rather than revisit what are by now very familiar arguments – for instance, that 'fans are no longer passive consumers', a point which has now been made repeatedly, and which in our view is not the most interesting facet of the game fandom phenomenon – we have sought out contributors to critically address, variously: fans' roles in videogame history, and their contributions to documenting games and game history. Notwithstanding this, some of the fan activities profiled certainly involve creation and artistry. In examining fans' roles in the collection and preservation of videogames and engagement with game history, the essays together subject the term 'fan' to some critical pressure, as it is used to refer both to figures familiar within Fan Studies (users, players, amateurs and aspiring professionals, citizen journalists, collectors, enthusiasts) as well as some less familiar ones (adopters, programmers, tinkerers, archivists, preservationists).

Following on from this, the collection profiles a set of practices that are not necessarily found in other fandoms associated with film, television, and celebrity. The book presents medium-specific accounts of the relationships that have been developed between fans and a variety of videogaming technologies. Authors discuss a wide spectrum of videogames, including a virtual universe with an open narrative structure, casual games, 'classic' platformers, and wargames. Platforms represented range from 1980s microcomputers, to arcade games, consoles, mobile games, and games for PCs. The collection's focus on fans' engagement with game history means that many of the chapters address particular games, systems and companies of the 1980s and 1990s. Discussion addresses games as they are made, unmade and remade, which is appropriate given the mutability of game software and hardware. The historic focus also allows us to include discussion of videogames' relationship to earlier modes of playing games, such as board games.

The collection's historical emphasis means that we are concerned with a longer history of game fandom including fans' documentation of games and game history itself, from the beginnings of the digital game era to the present. In adopting this time frame, we push back against the common tendency to treat the popularization of the Internet and

other new media from the mid-1990s on as a watershed moment in fan production. It is often erroneously assumed that before the Internet, fans were working in an analogue universe – literally cutting and pasting and photocopying their zines, for instance. With the appearance of the Internet, a range of other forms became visible to fan researchers – for example, blogging and modding, in the case of Jenkins' *Fans, Bloggers, and Gamers* (2006). Yet as Matt Hills usefully points out: "an emphasis on user-generated content as something newly technologically enabled also downplays 'a history of user-made websites, many of them fan-based, since the early days of the Internet' [citing Paul Booth] *as well as a longer pre-Internet history of fan-generated material*" (Hills 2013: 131, emphasis added). We seek to redress the limited attention paid to a longer history of *digital* fan practices, which constitutes a curious omission or blind spot within some Fan Studies scholarship. In our efforts to historicize digital game fandom, we are encouraged by work such as Ellen Gruber Garvey's on nineteenth-century scrapbooking, which so elegantly pushes the period of interest back well before computer or electronic media ever existed (2003).

Game history has also been a relatively understudied aspect of Game Studies. Whilst there have been a range of histories written on 'the' videogame industry (e.g. Donovan 2010; Loguidice & Barton 2009), these have often been journalistic or written by industry 'insiders'. Fans and collectors have also authored histories, whether in book form (e.g. Burnham 2003; Gielens 2000) or collaboratively online, with platform-specific sites such as World of Spectrum, Lemon64, and Hall of Light and compilations such as the "The Arcade Flyer Archive" notable and longstanding examples. More recently, the advent of crowdfunding has led to an increase in the production of fan-produced books and films, such as U.K. publishers Read Only Memory's Kickstarter-funded *Sensible Software 1986–1999* (Penn 2013), *Bitmap Brothers: Universe* and *Britsoft* (Wiltshire 2015). *Britsoft* is a collection of interview transcripts from the documentary film "Bedrooms to Billions" (Caufield & Caulfield 2014), whose directors are currently seeking crowdfunding for a third instalment in the series. Game historians, curators and preservationists have long appreciated the very rich knowledge that game fans and fan communities – encompassing collectors, authors, preservationists and system specialists such as those who program emulators – possess, and are often willing to share. Indeed, in his study of the collection and representation of the material history of videogames, Raiford Guins notes that fan archives are currently the unofficial standard of archival research for game history (Guins 2014: 85). Most major game exhibitions draw on repositories of fan knowledge. For example, the 2010 exhibition "MuseoGames" at the Musée des arts et métiers relied on the input of the game preservation network, MO5, to provide some of the playable exhibits[1].

A recent stirring of critical scholarship is now addressing videogame histories, seeking to move beyond the amassing and organization of data identified by Erkki Huhtamo as representing videogaming's "chronicle era" (2005: 4). The First International History of Games conference was held in 2013, and a range of book series are now in production from major publishers (the Game Histories series from MIT Press, the Landmark Video Game series from University of Michigan Press, and the Influential Video Game Designers series from Bloomsbury). Scholarly histories of gaming beyond the 'centres' of North America and Japan are increasingly receiving attention (Gazzard 2014; Kirkpatrick 2015; Saarikoski & Suominen 2009; Svelch 2013; Swalwell 2010; Wolf 2015), as are the less attended to social and cultural aspects of these histories.

Collectively, the essays in this volume address videogame fandom from diverse perspectives. Configurations of the key terms in our title – fans, videogames, histories and archives – structure the contents into three sections. These seek: to historicize game fandom; to recognize and theorize fan contributions to game history; and to critically assess the role of fans in ensuring the persistence of game culture through the Archive.

Historicizing Game Fandom

Contributors to Section I "Historicizing Game Fandom" wind back the clock, attending to fan practices beginning at the moment when home computing was born. The essays in this section present perspectives on: the creative dialogue between game developers and early computer users to support user production; the identity of the user as a 'gamer', how this was constructed historically in gaming magazines of the 1980s, and the value of fan labour; how attending to other types of games such as pre-digital wargames enables different attributes of the fan relationship to early digital games to be recognized; the way that fan practices extend the life of a platform, defying the logic of supersession and hardware obsolescence; and the way that fans' intimate relationship and knowledge of the Sega Dreamcast platform facilitates practices – some illicit – extending its circulation and imbuing the platform with 'post-consumer' value.

Building on his earlier scholarship on the emergence of 'gameplay' as evaluative criterion for computer games and the rise of the 'gamer' sensibility in magazines in mid-1980s Britain, Graeme Kirkpatrick argues that the rise of game construction sets and the emergence of the game engine marked a shift in who could develop games. Following the moment when so-called 'bedroom coders' created their own games, the emergence of more sophisticated software development kits marked a containment of ludic imagination and an end to the experimentation of the early days. It became less feasible for individuals to acquire the development kits, and Kirkpatrick reads this as a key turning point in

capitalism's use of computer technology. For Kirkpatrick, magazines offer a way to tap the then extant social perceptions of computers and games, and his Foucauldian analysis highlights the role of power in largely closing off the underlying levels of the machine from gamers, a process that he reads as reinforcing the producer-consumer boundary.

Also concerned with the 1980s, Helen Stuckey recounts the moment when a pre-existing fandom of wargaming transitioned to computer games. Her case study of *Run5* – the magazine published by the Australian company Strategic Studies Group (SSG) – studies the way that readers were instructed in how to become computer wargamers, as well as the way that the dialogue with developers revealed the underlying operations of the machine-coded routines. A key aspect of SSG's computer games was the ability for players to create their own scenarios, gaming speculative histories of warfare, and SSG's construction kits placed co-creation on the agenda from as early as 1984. As well as offering a view of the changing nature of audience relations with producers, Stuckey reflects on the survival of these documentary traces from the first decade of computer gaming (which have endured far longer than those from the web era) and their significance for the game historian.

Jaroslav Švelch hones in the ZX Spectrum, the platform that supported the most populous user community in Communist Czechoslovakia, and the transition that Czech and Slovakian Spectrum enthusiasts subsequently underwent as their revered platform moved through the stages of obsolescence in the 1990s. His chapter reminds us of the importance not only of historicizing fandom, but also of recognizing that fandom is constrained and shaped differently across different spaces, located in culturally specific contexts. Švelch reads behind the inevitability which attends the discourse of hardware 'revolutions' to discern three user strategies for keeping the platform alive – treasuring it; squeezing the most out of it; and extending the platform. Evidencing the very strong emotional bonds that fans felt – and some still feel – to their computer, Švelch's essay contributes a valuable affective and communal dimension to the study of platforms.

The last essay in this section also engages with Platform Studies, specifically the fan activity that continues to render a console culturally meaningful, long after its commercial demise. Skot Deeming and David Murphy profile the Sega Dreamcast console, attending to the rich "post-commodity" life that they argue is missed by the predominant industrial narrative of perpetual technological innovation. The technical fandom that unravelled the secrets of the Dreamcast's proprietary GD-ROM drive, and the subsequent development of software tools by fans have engendered a thriving scene around the console, which is useable both for the remixing of existing games and the home brewing of new ones. New hardware add-ons mean that the Dreamcast continues to be a site of technological experimentation, which the authors argue warrants recognition of Dreamcast fans as Platform Studies scholars.

Fan Contributions to Game History

Fans have been significant actors not only in documenting the history of games, but in constructing what is valued, historically. The essays in Section II examine fans' roles in writing game history and how their efforts define what becomes valued as history. Sometimes their practices also present alternative histories of games and demonstrate strategies for re-writing game history. The essays explore these issues by examining: the methodological and epistemological challenges of writing fans into a history of games and their play; how contemporary retro- homebrewing preserves historic game development practices; how attending to failures makes different historical narratives possible; and discourses and practices around elements of a game that are not part of the diegetic world but uncovered through 'investigative play'.

The role of the journalist in the writing of history is perhaps an unexpected topic in a discussion of fan history, yet this is Nick Webber's question in his chapter on the role of player journalism in *EVE Online*. Webber highlights the difference between the historical accounts of players and the authorised, canonical history of *EVE* curated by developers, CCP. *EVE*'s unofficial historians are themselves players: they are, Webber notes, deeply embroiled in the politics of *EVE* so whilst their first person accounts often offer 'on the ground' authenticity, they are not neutral voices. In his analysis, Webber asks, what kind of activity player journalism in *EVE* is: is it fandom, gameplay, or a form of public history? He further probes how such accounts operate as 'history in the making' and what this might reveal about the process of writing history.

Compared to the meta-historical conundra of Webber's *EVE* journalists, the Nintendo Entertainment System (NES) homebrew communities discussed by John Vanderhoef represent a community safeguarding the intangible heritage of the NES developer. Vanderhoef considers the communities' refusal to consign its platform to history, continuing to design for superseded technology. Against the commodification of game history and the commercial exploitation of nostalgia, he identifies the contemporary NES homebrew community as authors of a history of resistance: one which continues to value redundant technology, and which maintains the skills and knowledge needed to code for the NES. Operating against the trend toward game emulation, these fans preserve the activities associated with the NES's material heritage, restoring and recreating its material artefacts, such as cartridges, controllers and manuals. Vanderhoef's chapter reveals how the NES homebrew community – with their ongoing exploration of NES game design, resurrection of hardware and their own distribution channels and codes of production – are creating their own unorthodox chapter of NES history.

The expert knowledge associated with fandom takes a number of different forms in Victor Navarro-Remesal's history of failure, which he

offers as an alternative to the creation of a canon of 'classic' games. Navarro-Remesal interrogates three categories of failure: 'bad games', 'unreleased games' and 'flops'. Fans' insistence on these works' cultural value over that of a merely hit-driven narrative has led to revaluations, and even games being revived and republished. The examination of failure showcases the diversity around how fans process, create, influence and document history and establishes the need to look beyond the canon in videogame history.

In his chapter, James Newman analyses how fans' expert knowledge and mastery of the videogame disrupts the known history of the iconic Nintendo title, *Super Mario Bros*, bringing an unforeseen level into existence. Detailed player exploration of the *Super Mario Bros* gameworld revealed a glitch in the game code, leading to the discovery of the Minus World. Newman explains how the Minus World's discovery, exploration and documentation reveals game fans as both researchers and engineers whose expert knowledge informs both popular and scholarly discourses on games.

The Archive

Fans have long been the keepers of videogame archives. Fans took the initiative in assembling collections, developing practices for software preservation and emulation, and building communities dedicated to documenting the videogames and game systems of bygone eras. However, aside from research conducted by a small group of game archivists and preservationists – including the editors and some of the authors (McDonough et al. 2010; Monnens et al. 2009; Murphy 2013; Newman 2012; Stuckey & Swalwell 2014, 2015; Swalwell 2009; Swalwell & Davidson 2016) – there has been little scholarship that examines this phenomenon. James Newman warns against the seduction of characterizing retro game fans uniformly as careful conservationists and benign agents (Newman 2009). Nevertheless, fans must be acknowledged as being at the forefront of saving videogame history. Fans have dedicated themselves to ensuring that there is ongoing access to historical games. As software, continuing access to historic games is dependent on the imaging of tapes and disks before these removable storage media deteriorate, and the emulation of obsolete hardware and/or software. Alongside efforts to preserve games as playable artefacts, communities of fans have developed practices dedicated to recording, saving and sharing the recent history of videogames online.

Essays in Section III "The Archive" address: the relationships cultivated between fan communities and museum collection strategies; the way that soliciting players' personal experiences with games and platforms adds a vernacular dimension to the public domain of the Museum; the potential for player-produced videos to constitute an incidental

archive of gameplay; and the convergences and divergences between the imperatives of those game fans who insist on authentic gameplay experiences on the one hand, and historians and archivists on the other, when it comes to presenting and displaying the histories of early digital games.

Fans as collectors are well-represented in Fan Studies. It is, however, the moment when fans separate themselves from their collection that is the focus of Jennifer deWinter and Carly Kocurek's study. Their chapter examines the shifting values and 'resignifications' that occur when a fan collection is transferred to an institution. Drawing on interviews with U.S. fans, they reveal the diversity of fan collections on the material history of videogames, and the differing motivations behind the collections. A complementary series of interviews examines the distinct institutional curatorial agenda and approaches to working with fan collections. deWinter and Kocurek argue that fans' reasons for institutional engagement are diverse, and museums and archives also address fan-compiled collections in a range of ways that shift the identity of the collector and the collection. They argue that understanding the complex factors informing the contexts of collecting and individuals' relationship to their archives will assist in the building of archives for videogame history and preservation.

Benjamin Nicoll also considers fan practice in relation to institutional archives, asking how fan practice might inform institutional collection and preservation strategies, as well as understandings of what needs to be collected and preserved. Nicoll examines the vernacular archives of online fan communities for the Sega Saturn, analysing the processes, documentation, and preservation of fans and their negotiation of the platform's cultural meanings. His Saturn fans are self-aware historians of their own history, identifying the importance of early Saturn fan sites of the 1990s as essential records for today's retro-gamers. An alternative history of the Saturn is explored through fans' curation of the unreleased 3-dimensional *Sonic X-treme* game. Balancing this unorthodox and speculative practice is the more orthodox, careful conservation of the salvaged source code. Echoing Lynn Spigel, Nicoll suggests that the vernacular practices of the Saturn fan sites speak to the concerns of the present in ways that many professional histories currently do not, but perhaps should.

James Manning's chapter addresses the continually evolving casual, mobile videogame whose incremental updates can fundamentally change both the look and gameplay of a title. This new type of game, he argues, requires a new kind of archive and approach to collecting. Using Hipster Whale's *Crossy Road* as his case study, Manning explores how the video capture tools in the social video sharing service, Everyplay, create an 'incidental archive' not only of players' gameplay, but also of the game's evolving design. Everyplay's archive exemplifies Newman's previous call to focus on the game as it is played (Newman 2012). Yet in stark

contrast to the community-based "Lets Plays", machinima and speed runs that popularised video sharing, Everyplay videos are commercial artefacts, at risk of simply vanishing. Manning's essay works through just what it would take for this incidental archive to become an archive that is usable.

In the final chapter, Melanie Swalwell recognizes the important work that fans have done to ensure the longevity of digital games and the considerable opportunities that exist for museums and archives to collaborate with fans. Nevertheless, the insistence of some fans on 'the original experience' as the standard for game preservation is a stumbling block. Swalwell examines some of the conceptions of game history and preservation of 'game lovers', along with retro-gamers, and critical historians and curators. Drawing on scholarship from net art preservation, she argues that rather than invoking the model of the Art Museum which receives and conserves unique items, the Archaeological Museum provides a better conceptual model for born digital cultural materials such as games. She further argues that foregrounding heterogeneous elements in exhibitions and embracing the principle of reconstruction provides a better basis for visitors of the future to grasp the significance of early computer games, as part of a larger historical shift toward the digital.

It is clear that game fan activities, ambitions and identities are heterogeneous. Taken together, the essays present fresh perspectives on the term 'fan' itself, and its usage. A number of historical transitions are mapped: the identification of fans of gaming as 'gamers' (Kirkpatrick); and of traditional wargamers into computer gamers (Stuckey). Fans as collectors is an identity that has received considerable scholarly attention, especially with regard to the collecting of popular culture objects (Bartok & Jospeh n.d.; Geraghty 2014; Newman 2012; Stuckey, Swalwell & Ndalianis 2013; Winget & Aspray 2011; Woo 2011). We are reminded that fans' motivations and aspirations for collecting are not homogenous (deWinter and Kocurek). Some fans are scholars in a Platform Studies sense, engineers and custodians of arcane skills and knowledge (Deeming and Murphy, Vanderhoef). Other fans variously manifest qualities of: the resurrectionist (Navarro-Remesal); the archaeologist, forensically examining game code (Newman); or the 'game lover', one who loves games in the way an art lover loves art (Swalwell). Meanwhile, the Everyplay contributors whose traces of play Manning considers are simply players engaging with a game's pre-packaged system; this does not reduce the potential significance of the traces of their play for the Archive, however.

Beyond the specifics of individual chapters, collectively the essays contribute new knowledge around a number of meta-themes: of videogame fans' technical expertise; fan-institution relations; and the shifting valuation of born digital cultural artefacts more generally. These are, potentially, new research sub-fields, which we hope the collection as a whole

might stimulate, generating a new series of questions with which future Fan and Game Studies scholars might fruitfully engage.

The technical expertise of some videogame fans is remarkable; potentially, it separates them from fans of some other media. Švelch, Murphy and Deeming, Nicoll, Vanderhoef and Navarro-Remesal reflect on the way that fan communities attached to specific platforms embrace the creative constraints of the technology, building and sharing knowledge that allows them to sustain the original hardware and software, as well as create new software. Historic videogame fans did – and continue to do – more than creating software content, however, they also manipulate(d) hardware. Yet such activities have seldom been a part of the narrative of fan production in Fan Studies. Scholars interested in fans' cultural productivity have either not noticed such activity, or been reluctant to pursue the electronics and engineering knowledge and literatures which underpin such practices (Swalwell 2012). The current prominence of making and tinkering presents an opportunity to reverse this neglect. Opening up such a field of study would potentially articulate with efforts – by the Open Hardware and Fixit movements, for instance – to keep at bay regulatory and corporate encroachments on consumers' rights to tinker with, modify and repair their own digital devices (Doctorow 2012; Koebler 2016). Given how high the political stakes are, this would be a worthwhile future direction.

Fans as engineers of and for redundant videogame hardware are also having a wider social and cultural impact through their development of emulation solutions. The foresight and skill which videogame fans and communities have brought to bear in developing solutions for emulating complex digital artefacts are increasingly being appreciated beyond the realm of videogame fandom. Archivists working to preserve media artworks, for instance, recognise that enthusiasts – most often from the historic videogame sector – have driven emulation solutions for obsolete systems that are also useable for other born digital items (Ippolito 2016; Rieger et al. 2015).

Another theme to emerge across the essays is the shifts in the value of videogames, as well as in the relation between fans and institutions. Essays by Webber, Navarro-Remesal and Newman interrogate the role that fans play in determining what constitutes game history. Such contributions highlight the way that fan actions – to salvage and reinstate lost or unreleased games and even phantom levels – can expose the machinations of historical conventions with disruptive narratives of failure, local resistance, and revelations of unorthodox play. At a time when major cultural institutions such as the Smithsonian and the Museum of Modern Art have staged exhibitions dedicated to the history of games[2], it is significant that fans are shaping game history by celebrating and making accessible historic games that may, in turn, become revalued by more 'official' institutions and histories (Barwick, Muir & Dearnley 2009;

Kraus & Donahue 2012). There is, potentially, more going on here than just the revaluing of devalued, popular pleasures, a move very familiar to students of Cultural and Fan Studies. Rather than the familiar focus on fan-producer relations, what several of the essays address is the beginnings of a change in *fan-institution* relations. DeWinter and Kocurek's fan collectors alter perceptions of the worth of objects of game history, a value which shifts again as they are accessioned by collecting institutions. And Nicoll's fans, collaborating online, demonstrate new models for historians and museums to construct narratives and build collections. As one of the earliest born digital products, videogames are artefacts from the road to our becoming digital. Cultural institutions are having to grapple with hard questions about how they will collect and preserve the evidence of our increasingly digital lives, questions which are not going to go away and are only becoming more pressing. Videogames present a unique case study of how digital cultural heritage can be documented and preserved, which museums and archives can learn from (Stuckey & Swalwell 2014).

In *Show Sold Separately: Promos, Spoilers, and Other Media Paratexts* (2010) Jonathan Gray examines the increasingly important role that paratexts (merchandising, DVD extras, trailers, internet discussion boards, viral marketing, podcasts, spoilers, fan videos, etc.) play in the production of meaning that circulates around a film or television series. Other scholars have expanded the focus of the paratext to include 'prosumer' activities such as recut film trailers, fan fiction, fan re-imagined film posters and social media exchanges. When considering game fan activity, the idea of the paratext that extends activity around a specific game becomes more complex and academic research has so far failed to articulate the nature of these complexities. Videogames do rely on paratexts in the traditional way, through activities such as game advertisements and trailers, game magazines, mash-ups and player journalism; however, videogame fans and their practices also activate an expanded idea of the paratext. For Kathleen Williams, the fan-made trailer as paratext is understood as a vehicle for performing cinephilic and digital literacy (2012). In many of the examples of game fandom explored in this collection, this 'cinephilic and digital literacy' transforms into a gamephilia and game literacy that activates the 'original' game with greater immediacy when compared to film and television. Because of the ephemerality of game hardware and software but also the accessibility of digital technology, game fans are playing a central role in preserving, archiving and making games from the past playable. For example, rather than using their digital know-how to re-edit film scenes in ways that activate intertextual games, some game fan activities actually shape game history. The 'origin text' is not only played with, it is also restored and archived for a new generation of gamers. In addition to expanding the meaning of a game through paratextual activities, fan

activities also operate according to a palimpsest logic – history is revisited, revived, replayed and archived, making possible further repeat performances.

Although still a nascent field, we believe it is timely to consider fans, videogames, histories and archives together. The terms speak powerfully to each other, and the field is ripe with possibility. We trust the essays collected here will encourage fans, students, and future researchers to develop it in productive new directions.

Notes

1 "Museogames" was exhibited at the Musée des arts et métiers, Paris, from 22 June through 7 November, 2010 ('MuseoGames - Une histoire à rejouer' 2010).
2 "The Art of Video Games" exhibition was shown at The Smithsonian American Art Museum between 16 March and 30 September 2012. "Applied Design" was exhibited at the Museum of Modern Art between 2 March 2013 and 20 January 2014.

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Section I

Historicizing Game Fandom

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2 Early Games Production, Gamer Subjectivation and the Containment of the Ludic Imagination[1]

Graeme Kirkpatrick

This chapter explores the entwinement of technical and economic changes to the production of computer games in the mid-1980s with the transformation of amateur programmers into gamers. It argues that, notwithstanding the rhetorics of 'pro-sumption' that have been associated with the way that contemporary consumption shades into digital 'creativity', the transition we observe here corresponds to the superimposition, mediated through technology, of a fairly clear-cut distinction between production and consumption, labour, and leisure. The 'computer buffs' of the early 1980s, who wrote, shared, and copied software for home computers, were succeeded by people who thought of themselves as gamers. In contrast, gamers were interested in playing games rather than being concerned with how well they were made and gamer rhetoric opposed the value of gameplay to the qualities of being 'well-programmed' or even 'easy to load', which had been part of the critical vocabulary of the earlier generation.

This chapter explores the new identity as one effect of a strategy of containment aimed at limiting the range of permitted activities in connection with game (and other) software. This strategy[2] was motivated by the increased costs of game production from 1985; the development of software construction kits that made it harder for any individual to create a whole game, and the reduced number of game production companies in the second half of the decade. Focussing particularly on the case of Britain and relying mainly on documentary evidence in the form of the gaming magazines *Computer and Video Games* (*CVG*) and *Commodore User* (*CU*), which were published there throughout the 1980s[3], the chapter presents changes in the way that games and computers were represented in the gaming press as indicative of wider economic and technical changes to game production. It concentrates on the important period from 1984 to 1986, when the first construction kits were introduced and during which time the culture of bedroom-based developers was erased or consumed by larger companies.

In this context, gamer 'fandom' must be understood as ambivalent: on one side, it represented a world of play and a culture of pleasure that was positively embraced and actively shaped by 'fans' of the new cultural

practice. On the other, it constituted a series of imposed restrictions and constraints, channeling the creative impulses of a generation of computer users into preferred practices and behaviours. There is irony here because the promise of early computing was precisely that of experiences in which the only limits were those set by an individual's imagination, yet it was on the basis of this promise that a generation embraced what were essentially conformist practices. The seductions of gaming amounted to a gilded cage that prepared people for life as streamlined, self-managing workers. The case of the gamer is an instance of a wider irony in which, as Dardot and Laval (2014) have argued, the bold "entrepreneur-self" is the only permissible subject position in a social game that, as Karl Marx pointed out long ago, consistently rewards conformist mediocrity. For this reason, Michel Foucault's notion of a "subjectivation", in which a discursive-technical ensemble facilitates a transformation of the being of human individuals as it disposes them to behave in specific ways, is introduced to grasp the emergence of the 'gamer' in the mid-1980s.

The Bedroom Coder Milieu as Reflected in Computing Magazines, 1981–1983

The earliest computer gaming magazines position games and play with games in a technical culture of dabbling and experimentation. This culture was essentially continuous with the 'hacking' culture described (some say overly romanticised, see Dovey & Kennedy, n.d.) in Steven Levy's book *Hackers*. Levy writes that when home computers first became available in the United States, they were bought by the kind of people who enjoyed making their own radio sets or playing with model railways – people for whom electronics were a source of challenge and enjoyment:

> When you grow up with an insatiable curiosity as to how things work, the delight you find upon discovering something as elegant as circuit logic… is profoundly thrilling.
>
> (Levy 1984: 18)

The first dedicated gaming magazine, *CVG* was primarily addressed to just such a milieu. When it commenced production in autumn 1981 the first home computers had only just begun to appear in the United Kingdom. The Spectrum, BBC, and Commodore machines that became available in electronics shops at that time all shared the notable property that no one knew what they were for. In sociological terms, the home computer was underdetermined. As Les Haddon pointed out in a pioneering article published later in the decade, the first home computers "lacked any simple utilitarian image", although they carried "a considerable weight of symbolic meaning" (1988: 1; 17)[4]. A few ideas

predominated in the popular discussion, namely that computers would be important in the future, that it would be beneficial for young people to know about them and that they might be used to serve basic functions in small business or domestic financial management.

Magazines such as *CVG*, *CU* and others[5] reflect this indeterminacy and begin the process of responding to it. As such, their pages are full of articles, diagrams, lines of code and drawings that guided the first users in their interactions with the new devices. It is clear from the magazines that the world of the first computer enthusiasts was, as Sherry Turkle (1995) has pointed out, a *bricoleur* culture of dabbling and experimentation[6].

Each issue of the magazines explored what the computers could be made to do with a bit of knowledge about their architecture, perhaps a programming language (most often BASIC) and some enthusiasm. 'Sounds with Sid', for example, was a regular column in *CU*, which told readers how to work with the limited sound capabilities of the Commodore PET and later the C64, to produce musical sequences, or tunes crafted with the computer's beeps and squeaks. In its first issue, *CVG* also promised regular articles on making music with computers, promising readers they would soon 'be listening to a piece of music being played in four part harmony' on their machines (*CVG* 1 November 1981: 66). These kinds of activity are indicative of the tenor and orientation of the computer hobbyist culture: it was not marked by a sense of scientific mission but rather suffused with a kind of curiosity.

The editorial tone of the magazines in the first half of the 1980s was adult-to-adult. When children corresponded with them in their letters pages, the dialogue resembled a conversation with a kindly teacher. The magazines would recommend games specifically for children, as when, in *CVG* 1, readers are told that a program "offers a good game to the keen chess youngster who is short of an opponent" (*CVG* 1 1981: 25). Young readers in turn often expressed their gratitude for the assistance they received: "As a beginner I look forward to buying the magazine regularly", wrote one (*CVG* 3 January 1982). Similarly, if we take the magazines to be indicative, the early computer culture was prone to reflection, including critical self-reflection, on the relative lack of female participants. There were numerous letters from girls and women in their pages and articles by female writers about girls using computers in schools[7].

Within this culture, computer games programs were always quite salient. It is clear from the title of *CVG* that its creators knew from the outset that games would be a main concern. Nonetheless, games were not consistently held apart from the myriad software objects that circulated in the early 1980s. For example, *CU* 13 (October 1984: 75) contains a review of 'Typing Wizard', a typing tutorial program by Severn Software, with the explanation that "we've decided to include Typing Wizard here as somebody somewhere may conclude typing is fun". This indicates

that the boundary of program-game was somewhat porous, even for editors and journalists who might be assumed to have an interest in the issue. This is not a matter of not knowing the difference between a game and something else, rather it suggests that the distinction was not clearly understood and consistently maintained. The author knows that one of the things that might make something a game is that it should be fun but they don't yet have a check-list of criteria that can be applied, with little or no thought, to each and every tape received in the office.

Early issues of *CVG* and *CU* contained pages of what they referred to as 'program listings': lines of code which if typed into a home computer would generate a game that would stay on the machine until the next time it was turned off. This seems to have been a way to learn about programming – it would familiarise readers with commands and principles of computer architecture as well as introducing people to ruses and ways to economise on the use of machine resources to achieve effects. Program listings were often contributed by readers and published by the magazine to be shared with the whole community. This practice is indicative of the prevailing cultural ethos which was a culture of sharing in which the esteem of other programmers for the facility and elegance of one's work with the computer was more important than laying claim to ownership of the final product. The magazines often invited their readers to contribute both program listings and reviews of other peoples' games.

The 'bedroom coders' of the early 1980s were people who made games on their home computers, stored them in the form of written listings or on cassette tapes, and shared them with friends or through the pages of magazines. Some set themselves up as game development companies and made games for profit. Between 1982 and 1984, there were hundreds of small game developers all over the United Kingdom making games and advertising them in the magazines. The games had fictional themes of astounding diversity, ranging from the inevitable space wars to mowing the lawn (Hovver Bovver 1983, *Llamasoft*), apple scrumping (Over the Orchard program listing in *CVG* 16, February 1983: 56–59), and looking after the royal baby (Di's Baby, *Bad Taste* 1984). Reviews and letters pages confirm that they varied enormously in quality as well, although we should note that the proper standards for evaluating a game program were also in formation during this period and not properly established until the middle of the decade.

In this context of technical creativity, computer games were often represented as openings for the imagination. This was evident in the names of some developers but also their adverts in the magazines, so throughout 1983 ads for *Imagine* software showed their games floating above clouds (see Figure 2.1) and some of them contain captions such as "Imagine games that take you up to and beyond your limits" (*CVG* 21 July 1983: 156). *Postern* software used the slogan 'imaginations unlimited' to promote their games (*CVG* 21 July 1983: 59) and *Richard Shepherd*

Figure 2.1 Advert for *Imagine* software.
Source: *CVG* 17, March 1983: 64.

software captioned theirs with the phrase 'adventures into imagination' (*CVG* 23 September 1983: 60–61). *Quicksilva* games promised their customers a 'free universe with every tape' (*CVG* 24 October 1983: 2).

The period 1981–1984 was followed by one in which the distinction between computer games and other kinds of software became more fixed. This was the outcome of a reflexive process through which games and gaming were consistently described in terms specific to them by a community who formed themselves as fans of gaming[8], or 'gamers', in the process. The emergence of this group and the determination of a special class of objects with their own defining characteristic and qualities ('gameplay') occurred in tandem with one another. The process was related but irreducible to changes in the technology of games production and to the economics of the games industry, which occurred in the middle of the decade.

Construction Sets, the Consolidation of Game Corporations, and the Arrival of the Americans 1984–1986

In 1984–1985, adverts began to appear in the magazines for game program 'construction sets'. The 'Adventure Construction Set' was produced by *Electronic Arts* for the Commodore 64 computer, for example, and was popular in 1985. It enabled users to construct a tile-based adventure

game in which the basic elements of the game could be 'called' using menus and pre-programmed modules. Users could change the appearance of game objects and alter the algorithms that set game rules but they were relieved of the task of having to create more fundamental elements using machine code or BASIC, the most common programming language of the time. Using a construction set still required people to develop technical knowledge regarding the architecture of the computer and some coding skills remained necessary to make a game. The fundamentals of an adventure game, though, were provided by the construction set. Similar programs supported game-making in other genres. "Garry Kitchen's Game Maker" was published by *Activision* in 1985 and, according to Wikipedia, it was "the first high-level all-in-one game design product aimed at the general consumer"[9]. Such as the Adventure Construction Set, it abbreviated programming tasks and presented the user with menus from which objects and game characters could be accessed and assigned a place in the game design[10].

Using a construction set, a bedroom coder might feel liberated from the challenge of working in BASIC and be able to imagine a larger game that was perhaps made up of a sequence of game situations, whereas previously all of their effort would have been required to craft just one such scenario 'from the ground up', so to speak. However, construction sets exemplify an ambivalence that runs through the recent history of computing. On one side, they facilitated wider participation by making it easier for people to be creative without having to acquire in-depth technical skills. At the same time, though, they begin the process of bracketing those endeavours, constraining them to operate within preconceived notions of what the user should be permitted to do. In this case, the idea of what constitutes a game, including notions about genre, legitimate player actions and so on, come pre-packaged and dispose the efforts of the designer in specific, pre-determined directions.

This automation of certain aspects of game creation signified a new technological ordering that was imposed on the relatively directionless creative dabbling that had defined the *bricolage* of the hobbyist culture. Construction sets incarnated a new way of thinking about the process of game creation; this reflects and interacts with the emergence of new, autonomous standards of game evaluation discussed next. Taken together, they amount to a technical-discursive configuration that would begin to set new limits on the character of individuals' participation in gaming culture and establish new channels for their creative energies.

The appearance of construction sets for the home computing market was a sign that the technology of games production was entering a period of change. In the second half of the 1980s, game construction software, which anticipates what we now think of as Software Development Kits (SDKs), or 'game engines', were basic tools for the larger games companies who started to dominate the market[11]. As SDKs became

larger and more sophisticated, it became less feasible for individuals to acquire them. The development of programs that added a layer to the game creation process in this way became standard in the software industry by the late 1980s. It was impractical to make games for the second-generation Nintendo and Sega consoles that arrived on the gaming scene from 1987 (in the United Kingdom) without using SDKs and working in teams (Izushi & Aoyama 2006). A new division of labour in which programmers, designers and software engineers worked through different interfaces on the game object became the norm. In this way, games production ceased to be a cottage industry and became a capital intensive, highly corporate operation.

These developments within game creation technology mirrored changes that were going on within computing more widely, which are also reflected in the magazines. Both *CVG* and *CU* carried articles on 'user-friendly' computing, which reflects a new emphasis on the human-computer interface, or writing software that presents functionality to users in a way that means they can access it without having to think about underlying technical processes. In a series of articles on 'user-friendly design', *CU* introduced readers to a new conception of program design:

> …when we say "better", we don't mean Faster, or Smaller, or Containing Lots of Complicated Things that Nobody Understands and Neither Will I in Six Month's Time. No, this time around we want a 'good' program to be one which is a joy to use, whether you have just picked it up from the dealer or have been using it for two years.
> (*CU* 13, October 1984: 22)

Previously, and more commonly in 1984–1985, the main criteria for a 'good program', game or other, would have been elegance and economy with the machine's limited resources. These articles reflect a new perspective that became dominant over the next decade, in which computers were re-imagined as the kind of machine that humans could operate and use without having to think technically, or even being aware they were using technology at all. The overall goal of 'user-friendly' computing was to make machines more like people instead of obliging people to think and behave like machines.

It is perhaps obvious that computer games informed the new, user-friendly designs (see Laurel 1990) and there is also evidence that gaming was one of the first areas of computing in which this kind of thinking about the presentation of computers and interface design developed. In the first issue of *CVG,* for example, an article about game programming contains the following observations:

> Although mathematical computation is undoubtedly necessary during the course of any reasonably complex game, to present the

> results numerically is bound to become rather dull sooner or later. To present them in words is better, but books are better for reading from than video screens. A picture is worth a thousand words and graphics are much more informative and natural than the other alternatives.
>
> (*CVG* 1 November 1981: 85)

As I have argued elsewhere (Kirkpatrick 2004), the notion that human-computer interaction might be made more 'easy', while it seems like common sense now, was not uncontested. Indeed, as late as the mid-1990s many of the pioneers of 'easy to use' interface design complained of resistance from what they perceived as a kind of 'technical priesthood' within computer design (see Laurel 1990 and Negroponte 1995, for examples). On the other side of this argument were those who expressed concerns that combined ethics and practicalities. Presenting a computer as a 'non-technical' object was a kind of deception, and the desire to do so might be seen as manipulative. Having people understand the technology they are using might be preferable in certain contexts, even where employers can see short-term benefits such as not having to provide training. Moreover, devoting machine resources to providing sumptuous interfaces offends the hacker principle that computing power should not be wasted[12].

Games were an integral part of the process through which computers were transformed into the kinds of objects that could become culturally mainstream. It is a commonplace of computer history that everyone can use a computer because computers have been designed to be accessible and comfortable to use and there is no necessity to acquire technical skills to operate them. At the same time, however, we should note the less well-observed fact that everyone can use digital devices because of a profound modification to our embodied dispositions and habituated manual skills, which amounts to a significant transmutation of our collective being. Making computers with 'user-friendly' interfaces involved creating a new vocabulary of human embodied response so that, within the first few years of home computing, moving a mouse to produce cursor movements on a screen became second nature for many people. It is worth remembering that in the 1980s the experience was not 'natural', or even obvious to many people.

Paradoxically, the same process that sees the habituated skills of computer use generalised onto whole populations also involved a series of limitations and restrictions on human creativity with computers. As people learned to use the new technology it was increasingly 'normativised' in Georges Canguilheim's (1989) sense of the term: "norms, whether in some implicit or explicit form, refer the real to values, express discriminations of qualities in conformity with the polar opposition of a positive and negative" (1989: 240). Once computing becomes charged in this way, then not only are there right and wrong ways of doing things with them but no activity with them escapes the question of its rightness. This normative charge does not derive from the requirements of technical efficiency alone but reflects a socially determined codification of

computer use[13]. This codification has important correlates in changes to the economics of computer and game production.

In the late 1980s and early 1990s, game production started to be more of a team activity and its reliance on technologies such as SDKs meant that it also became more expensive. With the arrival of Nintendo and then other second-generation consoles (in the United States from autumn 1986, the United Kingdom a year later), game programs could be bigger and more audacious. SDKs made this kind of work possible, but they gradually displaced the home coder hobbyist over the course of 1986–1988.

There are signs of this re-organisation of the industry in the magazines, in the form of adverts, which appeared from 1985 onwards, in which larger companies, often US-based, looked to recruit programmers (see Figure 2.2). These indicate a process of consolidation, in which larger firms with more capital started to create fewer games with clearer values and a stronger sense of their core market. Games companies such as *Imagine* went out of business at this time, unable to compete with the new firms (*CVG* 34 September 1984: 22 and Anderson 1984). With them went the thematic diversity of the early games. *Imagine*'s own line in experimental titles, such as 'Bandersnatch' and 'Psyclapse', proved too esoteric for the new market that was being formed for games, which increasingly were designed and programmed with 'gamers' in mind (see the following section).

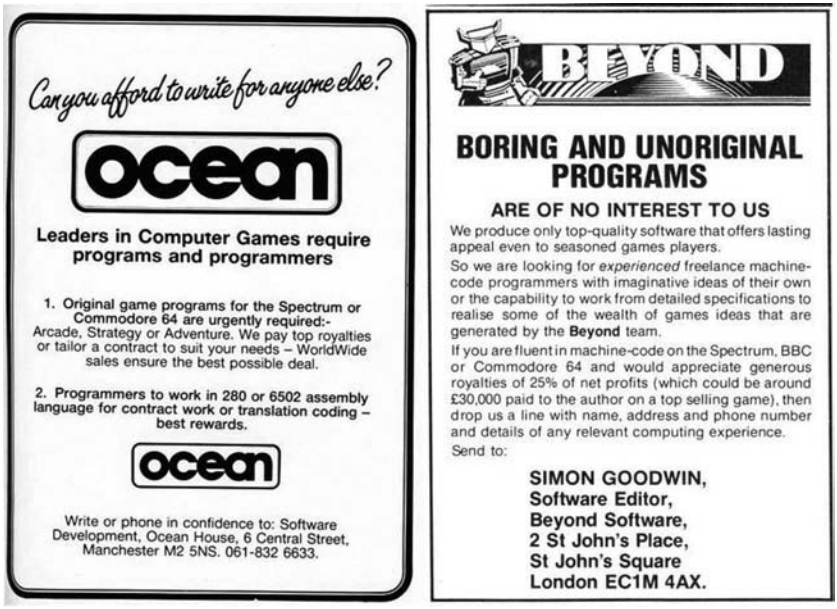

Figure 2.2 Adverts for Beyond and Ocean software developers looking to recruit new programmers and to buy games programs from smaller developers, *CU* 14 November 1984 p. 105 and *CVG* 32 June 1984 p. 151, respectively.

The narrowing of thematic game contents described above reflects a well-known consequence of increased automation, which is product standardization (Braverman 1974). SDKs provided a set range of effects, including types of scenario and character, that it became the job of game production teams to get the most from. This standardization of game themes must be understood as running in tandem with the appearance, from the middle of the 1980s, of a new constituency for games, the real 'fans' of gaming. The magazines were a key site for the development of a discourse around gaming and for the promulgation of a new, 'gamer' identity that went with it. Taken together, the newly normativised technologies and the framing of play with them as 'gaming' constitute a discursive formation that is, in Foucauldian terms, subjectivated in and through the figure of the gamer.

'Gaming' and the Gamer Subjectivation as Imposition on Limitless Imagination

The mid-1980s saw a to-and-fro of technical and organizational change on one side and cultural innovation on the other. Computing and gaming magazines played a key role in the latter. Game reviews, for example, struggled at first to find concepts that applied to games and which would draw out their specific features. The magazines were concerned with identifying terms players were already using to give their own pronouncements more authenticity. In late 1981 and early 1982, for instance, *CVG* reports two visits to arcades where they attempted to pick up usable phrases from players' conversations (*CVG* 2: 30; *CVG* 4: 30).

This reflects a scene in which people were thinking harder about games and reviewers were actively involved in the development of a game-specific evaluative discourse. Of particular importance here was the identification of 'deep gameplay' as the main distinguishing property of a good computer game. Although the experience of playing a game was sometimes assessed for its 'playability', the word 'gameplay' rarely featured in game reviews before 1985. From 1985, the magazines seem to collectively settle on 'gameplay' as the key term of game appraisal and evaluation. The arbiters were the readers who actively embraced some terminology and not the rest.

Here too there were terminological experiments and false starts. In 1983, for instance, *CVG* refers to some of its readers as 'vidkids' (*CVG* 25: 48), whereas an advert for *Big K* magazine refers to 'pixel-packers, midnight hackers and binary-bustin' bozos' in its attempt to solicit interest (*CVG* 32 June 1984: 118). Before mid-1985, 'gamester' was more commonly used to refer to players, but in general they were not distinguished from other members of the 'computing fraternity'. However, as gameplay emerged as the key term of game evaluation, so the gamer emerged as the kind of subject who knew what it was.

Reviewers who failed to fall in with the new perspective on game evaluation were prone to being criticised by a new, unruly constituency whose letters started to dominate the letters pages. Younger readers, now emphatically called 'gamers', began to assert their perspective on games as the sole legitimate one. A letter to *CU* in August 1986, for example, condemns a reviewer for being more interested in how well a game was programmed than in "actually playing it" (*CU* 35: 7). The change was noted by readers who did not feel included in this development; their letters protested what they saw as a more 'subjective' tone in the reviews, with more than one pointing out that the magazines were becoming like comics and appealing exclusively to younger people (e.g. *CU* 37 October 1986: 5). The gamers responded, calling these older readers "miserable, jumped up little nerds" (*CU* 34 July 1986: 5), among other things.

The magazines testify to a process through which games programs were singled out and praised in terms of novel evaluative standards specific to them. At the same time, in the letters pages and in the game reviews it is clear that a new constituency is being formed through these processes. People who are enthusiastic about games playing adopt the language of 'gameplay' and make it the basis of a social distinction, drawn boldly in the pages of the magazines, between those who 'know' and 'get it' about games and other social groups, who do not. It follows that the role of 'fans' in this situation is neither that of passive consumer whose tastes are manipulated by marketing, advertisements and so on nor that of a fully autonomous agent crafting new experiences and meanings without social constraint.

Gamers were the ones who found themselves using the new discourse to make sense of their experiences. In the process, they created 'gaming' as a cultural practice and, in Foucault's terminology, were subjectivated by gaming discourse. Among these people were many of the home-coding game creators who made games that would appeal to the emerging 'gamer' sensibility. Moments of inspired creativity here include Andrew Braybrook's 'Uridium', a game that was widely lauded in 1985 for the depth of its gameplay but also for having brought powerful visual effects, previously only available in arcades, onto small screens.

On the other side of this dialectic of invention (Chanan 1995), as the games industry consolidated and became more corporate, the tastes and preferences of gamers served as an increasingly important reference point. As games became more expensive to produce and the risks of failure correspondingly greater, it suited games companies to have those tastes as clearly defined as possible around a few, easily identified genres.

As gaming discourse becomes more securely established, the magazines serve as sites of self-transformation, or subjectivation. The discourse of 'deep gameplay' and its cognates is taken to heart by some readers, so that the 'gamer' identity is not just an idea but a practical, lived reality. A space is set out in which individuals can locate themselves

reflexively and on which basis they can find a new relationship to themselves and others. Foucault defines subjectivation as occurring when a subject cannot not recognise a truth that pertains to them and which changes them (Foucault 2014: 13). This change is first and foremost a change in the relation one has with oneself ('this is now true about me') and initiates a 'game of truth' ('which I must play')[14]. Subjectivation "involves coming together with oneself, the essential moment of which is not the objectification of the self in a true discourse, but the subjectivation of a true discourse in a practice and exercise of oneself on oneself" (Foucault 2005: 333). Discussing therapeutic and spiritual practices of late antiquity, Foucault refers to the importance of physical posture and exercises that relate to this operation[15].

The encounter with a truth that concerns who or what one is modifies one's relation to objective structures and practices, which is how truth is related to the real. It means that the subject is invested in a 'game of veridiction', which involves what Foucault calls a 'truth that exceeds the real' (2014: 237–242). In the case of gamers, they know that there is gameplay and that, as gamers, they are attached to it – its presence or absence is a matter for them. This involves a constant striving and searching for the gameplay effect, which, as is the case with most of spiritual life as well, is largely not productive, except of the idea that there is gameplay out there and that it expresses a truth that is important to them and others like them. Gamers' truth, then, exceeds the real and tie gamers into ongoing procedures of veridiction that involve finding authentic gameplay in games on one side and working on themselves to become better players – more fitting subjects for gaming's truth – on the other.

Gamer subjectivation was the basis upon which new truths were produced, recognised, understood, and articulated, and, in this case, these were the truths pertinent to games. No one knew clearly what a computer game was or what made a good one before this evental transformation of playing subjects. Having access to these 'truths', which we should note are constitutive of a whole stretch of social and cultural reality that simply did not exist before, required a new subjective mode of being. This process was ambivalent because it represented a path that could be chosen only by those who found themselves 'eligible' and it was an identity they chose because it seemed authentic – true to themselves and their enthusiasm for the new activity. At the same time, like user-friendly computing, gaming as a codification of practices with computers and the gamer identity was a discursive framing with disciplinary and exclusionary implications.

From the perspective of the game corporations, gamers represented a new market being carved out of the more varied and unpredictable technical milieu that had been the computer hobbyist culture. As a new cultural group with its own mores and tastes which were expressed in the magazines, gamers made it possible for them to narrow the range

of their products to a few genres, especially space combat, fighting and sports simulations, that were more or less guaranteed to appeal to teenage boys. Once the period of experimentation had passed, the magazines themselves change to reflect this situation. In the late 1980s and early 1990s, they become more like comics, with much more in-game imagery dominating their content and reviews comprised mainly of hyperbolic expressions of enthusiasm for the games. The vocabulary of the latter also narrows, around the theme of 'gameplay', its 'addictive' quality and the 'mind-blowing' character of game action.

It makes little sense, however, to view the creation of gaming culture as merely an effect or consequence of these economic imperatives. Rather, the active embrace of a subject position that goes beyond internalising the label 'gamer' to involve an entire habitus, a repertoire of skills and embodied capabilities that prepare them for the future, strengthens gamers in the sense that they are better equipped to play the games of the future and to find their 'truth'. It is in this sense that the transition from gamester to gamer reflects a new subjectivation. The transformed mode of being of the gaming subject bears upon the whole issue of habitus in digital culture more widely and speaks to new practices of meaning-making and interpretation which are often taken for granted[16].

Having promoted games in the early 1980s as a realm that was only bounded by players' imaginations, the magazines reflect a rather narrower universe by the end of the decade. Now, limits are set by technology, capital, and a narrowed set of preferences that condition success in a well-defined marketplace. As the content of gaming narrows, so we also see a new, proprietorial emphasis on ownership of software and the demise of the *bricoleur* culture of copying and sharing. This change is most obvious in the small ads section of the magazines, where, in the early 1980s, one could find many copied games for sale, to borrow, and exchange. This reflected the culture of experimentation mentioned previously but also the hacker's disregard for proprietorial boundaries, which was long an irritation for those companies trying to make money from software in the early days of home computing.

In the second half of the 1980s, the games industry involved corporations who were big and litigious enough to ensure that this culture was severely curtailed. The advert in Figure 2.3, from *CVG* 72, is illustrative. It embraces the 'pirate' metaphor that was being used to stigmatise the sharing activities of the technical hobbyists and announces that the magazine will no longer facilitate the culture of sharing.

The magazine distances itself from illegal activity and this becomes even more of a concern towards the end of the decade, when all the magazines carry government adverts emphasising the illegality of copying software and hacking computers. With the arrival of consoles in 1987, the prohibition that this applies to creativity was also enforced through technology, as it was no longer possible for a lone programmer

Figure 2.3 Advert deterring people from using *CVG* to exchange illegal copies of game software (*CVG* 72 October 1987: 144).

even to attempt to make games for those machines. The important point, though, is that the real policing of this foreclosure on experimental dabbling was internal to the subjects of these processes. Gamers are subjects who have adjusted to the reality that games are a discrete layer within the machine and, for them, this layer mostly exhausts their interest. More than that, it is here, in the playing of games, that they expect to find validation, confirmation of their 'gamer' identity.

Conclusion: Gaming Subjects and Neo-liberal Governmentality

Computer gaming was brought into being through a social process in which it was recognised that playing games on computers was a practice with its own, more or less autonomous values. In this process, fans, or gamers, played an important mediating role. As a group, gamers were not engineered into existence through the marketing strategies of corporations, but neither were they completely free to impose any sense whatever on their practice. For some software to appear to be 'games' presupposes a kind of grid of intelligibility that sorts some programs from the rest. From here it is a short step to asking distinctive questions

about them – are they good to play, as against well programmed? But for this step to be taken, there had to be people who felt it was worth the effort. The magazines testify to a heroic intervention, in which they and their readers were participants, that revolutionises societies' perceptions of computers and games.

Once that step was taken, others had to find themselves reflected in the resulting discourse. They had to feel that only by using terms such as 'gameplay' and discussing its 'depth' could they do justice to their activity with the games. These activities involved talking about games with others for whom this way of talking made sense but they also entailed transformations they wrought upon themselves, upon their bodies. "Nintendinitis" (Scheff 1993: 205) was only one sign of this and each subsequent generation of gamers has modified the disposition or habitus established by the first generation of gamers in response to different game controllers and new technical formats.

The purpose of invoking Foucault in this analysis is to highlight the role of power in these processes. What we see in gamer subjectivation is the inculcation of a new set of embodied procedures that have become second nature (for gamers but subsequently for nearly everyone on the planet). This is not only a matter of the embodied familiarity most people have with game controllers and computer mice. New users of game technology do not now think of dabbling with underlying machine levels that have nothing to do with them – where would be the 'fun' in that? This amounts to a determinate codification, which effectively polices the boundary between producer and consumer, largely eliminating the territory in which Braybrook worked to create 'Uridium', placing gamers on one side and game producers on the other.

The gaming subjectivation was a key turning point in the history of capitalism's use of computer technology and it is indicative of one important sense in which neo-liberalism marks a break in the development of that economic system. What is at stake here is the difference between two modes of subjective engagement with computer technology. One was an open-ended, longitudinal flux of myriad engagements with technology and associated discourses, through which people navigated potentially diverse paths. We can think of this in structuralist terms as the technological or computational imaginary, which presented home computing as a horizontal axis of possibilities. The determinate symbolization, which differentiates and sorts games from other software, then appears as a vertical axis that intersects and arrests this flux, fixing and imprinting certain privileged technical elements as definitive and determinate for a range of new identities. Among these, the figures of 'user', 'hacker', and 'gamer' have turned out to be particularly salient. The effect of each is to police and restrict the range of human interaction with and use of digital technology. The peculiar interest of the gamer subjectivation lies in the way that it appeals directly to the very

things that traditionally resist such an arrest in personal development – imagination, creativity, play – and turns them into their opposites.

Even when games companies make 'level editors' or other tools available to players so that they can fashion new game elements for themselves, they work within parameters that have already been set. The technology contains multiple restrictions on the kinds of creativity that are possible. The proprietary restrictions are implemented through game licenses, which now routinely state that the results of these endeavours belong to the publisher and not the person who made them. Subjectively, players are rarely inclined to deviate from the constraint that they should make a computer game, which now entails a number of properties that have been firmly established. In each of these ways – technically, legally and bio-politically – the effect is to reinforce the producer/consumer boundary.

However, this is not a matter of gaming discourse as a form of knowledge with a subject who internalises it, but of gamers as subjects of a truth that they produce through their activity and in which they struggle to find themselves. It is linked to the emergent neo-liberal form of governmentality, in which being able to 'play the game' well becomes all-important and each of us will be obliged to take responsibility for our own 'scores' (Dardot & Laval 2014). This activity is only 'play' in the most tendentious employment of that term (cf. Golumbia 2009). It reflects an ironic twist of fate in which the heroic efforts of a sub-culture dedicated to testing the limits of their imaginations in a new aesthetic practice succeeded in normativising the realm of information technology in such a way that its true potential would remain forever out of reach.

Notes

1 I would like to thank Stephen Stuttard for providing scans of the magazines cited in this chapter and Roger Kean of Newsfield for his guidance on copyright issues. I am grateful to Sarah Carling, Melanie Swalwell, Angela Ndalianis and Helen Stuckey for their comments and suggestions on earlier drafts of this chapter and to Feng Zhu for our discussions about subjectivation.

2 I am using the idea of strategy here in the same way as Dardot and Laval (2014) use it, to designate a movement of resources in a particular direction corresponding to an extension and intensification of governmentality and not with reference to individuals and their choices.

3 *CVG* was published monthly by EMAP from October 1981 to 1995. At its peak in 1988, it probably had a circulation in excess of 100,000, including several thousand copies that were exported to other European countries, Scandinavia, Australasia, and the Middle East. *CU* commenced publication in 1983 and was produced by Commodore as part of their UK marketing strategy (see Bagnall 2010).

4 For studies that make similar comments about the indeterminacy of early computers and importance of social factors in shaping their design and use see Edwards (1995); Freiberger and Swaine 1984; Kling and Iacono 1988,

and Pfaffenberger (1988). The latter concludes with the observation that personal computing "has become 'impersonal computing'" and largely failed to deliver on its promise "to foster autonomy and individual creativity" (1995: 47).

5 Other gaming magazines appeared later in the decade, including *Zzap!* and *Crash*, which were both published by Newsfield. Newsfield originally traded in software but found that its catalogs attracted interest in themselves, which is said to have inspired the magazines (Uffindell 1992).

6 She takes this term from Claude Levi-Strauss, who distinguishes the *bricoleur* from the engineer. The latter works by means of concepts that might apply universally and so comes at objects with the intention of acting on them while the former works with objects as they appear within the realm of conventional meanings: "…the engineer is always trying to make his way out of and go beyond the constraints imposed by a particular state of civilization while the 'bricoleur' by inclination or necessity always works within them" (Levi-Strauss 1966: 20).

7 For example, Valerie Buckle wrote about this issue in *CU* 19 (March 1985), whereas in *CVG* 9 (July 1982) Elspeth Joiner discussed whether some arcade games might be preferred by female players.

8 The designation 'fan', with its etymological link to temple devotees (fanaticus) is appropriate because there was a kind of zeal associated with the new identity (Jenkins 1992: 12).

9 https://en.wikipedia.org/wiki/Garry_Kitchen's_GameMaker.

10 Other construction kits included 'Game Designer' (Galactic software 1984); 'Game Maker' (Activision 1986); Boulder Dash Construction Kit' (Wicked Software 1986), and Shmup Construction Kit (Sensible software 1986).

11 As games programming has developed over the past few decades, the SDK or game engine has evolved into what is effectively a distributed working environment providing services to animators, story-boarders, experts on the 'game' parts of the game, as well as software engineers and programmers. Different SDKs automate various aspects of the process to different standards and have come to be associated with a range of effects, so that choosing the right engine is a key moment in the game development process (see Kirkpatrick 2013: 103–106). SDKs are commercial tools that cost several millions of pounds to acquire.

12 For contemporaneous computer scientists who questioned the desirability of interfaces that were 'natural' or easy to use, see Nickerson (1976) and Fitter (1979).

13 The normativisation of computers is an instance of what Andrew Feenberg calls the 'technical code' in which social and technical concerns "intersect" (Feenberg 2010: 22). Viewed in this way the hacker aesthetic, mentioned previously, which favoured economy and elegance in programming, also had a normativised perception of the computer but reversed the polarities.

14 "…every discourse of truth… [is] essentially a practice …all truth a game of veridiction …every ontology …a fiction" (Foucault 2010: 310).

15 The idea of subjectivation differs from Foucault's earlier idea of subjectification, which involved a subject internalizing a discourse that bore objective knowledge. In subjectivation, truth supplants knowledge as the focus and the subject is not so much produced as an effect of power as tied to a truth as it becomes entwined with objective reality – a truth it recognises as its own.

16 For example, Nigel Thrift writes of the hand acquiring 'new cognitive functions' in processes of 'qualculation' that mediate our relationship with information (2008: 102).

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3 Transitioning to the Digital

Run5 Magazine as Archive and Account of SSG's Dialogue with Wargamers in the 1980s

Helen Stuckey

Between 1986 and 1996, Australian game developers Strategic Studies Group (SSG) published 25 issues of their magazine, *Run5*. A subscription-based magazine, it provided information on SSG's games to their audience of dedicated wargamers. The magazine featured articles on their games, new scenarios to play and detailed historical information on the battles featured. A set of the magazines donated to the Play it Again Project (both as hardcopy and as digital scans for the website) offer an extraordinary document of the story of SSG, providing a sense of the company's character, its culture, and the rapport they achieved with their audience. *Run5* played a vital role in allowing SSG to communicate directly to their audience. It also gave their audience a voice, creating an archive not just of the company but also the player community. The magazine documents an important historical moment when fans of wargaming embraced the new possibilities of computer gaming. The dialogue that SSG had with its audience within *Run5* reveals how SSG used their magazine to educate fans of manual wargames how to be computer gamers.

A central pleasure of manual wargaming is identified as the ability to alter the game system to create new strategies and scenarios. SSG wanted to provide wargamers with computer games that were as versatile and customisable as the manual hex-based board games they were familiar with. SSG's computer game systems supported players to adapt and create game scenarios to reflect their personal historical and strategic interests. When it first launched, *Run5* acted as a vehicle to inform wargaming fans how to wargame on the computer. Melanie Swalwell has observed that accounts of user productivity in the era of the microcomputer have largely been overlooked in games scholarship (Swalwell 2012). Her research addresses user activity associated with the arrival of micro-computing, a time when to play a computer game often required the player to type in the code themselves or even to build their own kit computer. In these early home computing experiments, games were just a 'thing' you could do on a micro-computer. I differentiate the nature of these micro-computing hobbyists, whose activities blurred the distinction between the creator and consumer, with the player community for SSG games. *Run5* addressed itself directly to an existing community

of highly literate wargamers who expected to be able to manipulate game systems. The legacy of manual wargames and the early computer wargames inspired by them are a mostly forgotten part of the story of videogames. Matthew Kirschenbaum states that the lack of knowledge about them today is disproportionate to their historical influence and early market share (Kirschenbaum 2009). In Games Studies and history, little attention has been paid to the central role that user-generated content played within wargame culture in the 1980s (Kirschenbaum 2008, 2009).

This chapter examines how *Run5* provides a record of the transition of fans from manual to computer wargames and how the magazine documents the user culture of SSG's fans of the era. The survival of *Run5* is contrasted to SSG's shifting of community support online to Compuserve and Applelink forums, and later to the World Wide Web, as few traces of these digital resources have survived. Yet *Run5* endures as a fascinating record of the early history of computer wargames and the Australian developer's relationship to its international player community. I conclude this chapter with some observations on how SSG's decision to share the now-historic magazines online via Play it Again has reignited a discussion with its community. The fan community's relationship to the material is not simply one of nostalgia but continues to address the value of these historic game materials as a design resource.

Strategic Studies Group

Founded in 1982, SSG was created by two dedicated Sydney wargamers, Roger Keating and Ian Trout (Figure 3.1). Trout, an ex-school teacher, was managing a military history bookshop and was co-opted by Keating to test his computer game designs[1]. Not being a computer gamer, Trout was originally dismissive of Keating's games but after playing "all" the American-designed computer wargames he could find, he decided that, although Keating's games "were bad" the others were "worse". Seeing an opportunity, Trout persuaded Keating that they should start a business together[2]. An ex-high school maths teacher, Keating had recently returned from the United States where he had been writing computer games at the offices of the pioneering American computer wargames company, Strategic Simulations Inc (SSI)[3]. In 1979, SSI offered Keating an international publishing deal for his previously self-published game *Conflict*[4]. SSI's offer coincided with an opportunity to visit the United States as the International Apple Corp Director for Australia. The role was as an honorary ambassador for the Apple User Groups of Australia. Encouraged by SSI's offer and passionate about programming, Keating left his teaching job to try it as a games designer[5]. The trip to the United States gave Keating a chance to spend

time at SSI's offices in Silicon Valley. After his time with SSI, Keating continued to write games for them, and in 1981 they eventually offered him a job in America. Tempted, but concerned about working in the fragile fledgling industry in a foreign country, Keating opted for the security of staying in Australia. He continued, however, to design games for SSI till 1985[6].

When Keating and Trout founded SSG, they established the company as both a developer and publisher. Trout knew a bit about publishing through his bookshop work, and Keating, from his relationship with SSI, knew designers did not make the real money. Keating already had a reputation as an exceptional programmer able to squeeze engaging artificial intelligence (AI) out of 64 KB of RAM on the Apple II. Trout was an avid amateur military historian with a passion and skill for manual game design (board games and wargame miniatures). Their first game, *Reach for the Stars* (1983), a space exploration game, is credited with launching the 4X genre of computer space games (eXplore, eXpand, eXploit, eXterminate). It took its inspiration from the board game *Stellar Conquest* (1973), reworking the gameplay to take advantage of the strengths of the computer[7]. The game was very successful, cementing Keating's reputation for AI design. It also reinforced for SSG the importance of the American market as the Australian audience for games was so small. Before they published their next game, *Carriers of War* (1984), they secured an American, John Gleeson, to give the company a local American presence. Gleeson's job was to be there to address any issues in America – from player support to customs. In 1986, fellow wargamer and programmer, Gregor Whiley, was invited to join the company as the third director and company 'diplomat'.

Figure 3.1 Ian Trout and Roger Keating of SSG playing a traditional hex based manual wargame. Courtesy Roger Keating.

Run5

Run5 was conceived as a quarterly magazine but did not quite hit that mark every year, publishing only 25 issues in 10 years (Figure 3.2). As a company organ, it was entirely dedicated to supporting SSG's games with the occasional review of a competitor's work they admired. Its primary content was new scenarios that could be entered into the appropriate SSG game system to create a new 'game' to play. The scenarios were modelled on historic battles of a related nature to the original game but required the terrain, weather and the units to be reconfigured.

For their second game, the air and sea battle, *Carriers of War 1941–1945: Fleet Carrier Operations in the Pacific* (1984), Keating

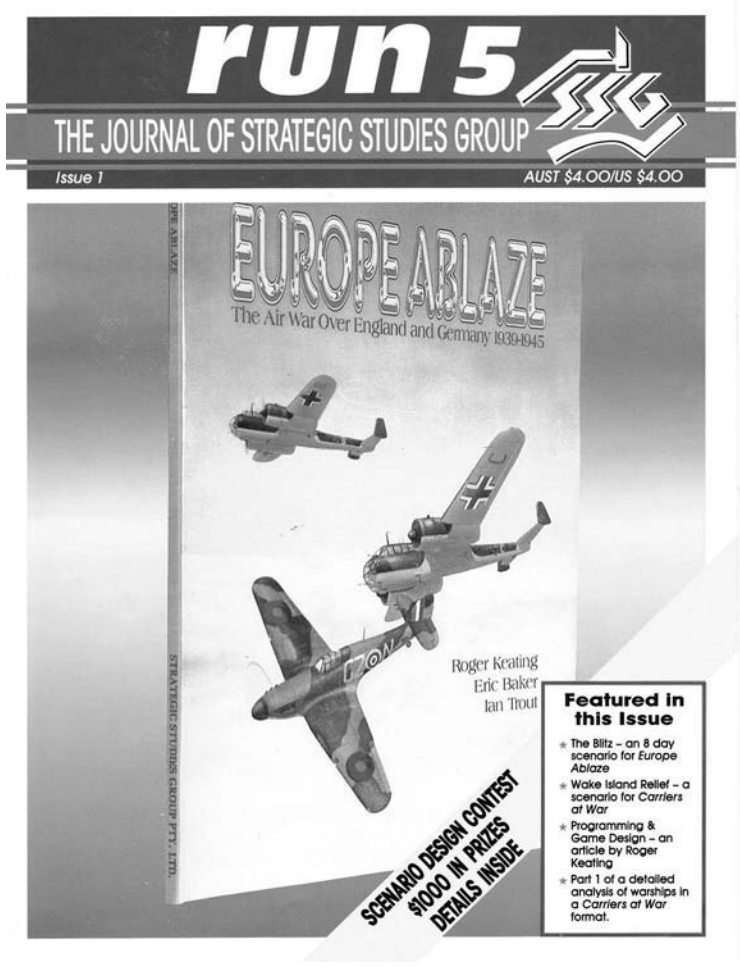

Figure 3.2 *Run5*, Issue 1, January 1986, cover. Courtesy Roger Keating.

built a design kit for Ian Trout to use to craft the historic battle scenarios. Trout was not a programmer and did not possess a deep knowledge of computing. Keating designed a system whose interface allowed Trout to input his precise military knowledge as data into the system. This data sat separately from the routines that Keating created to run the game modules (Keating 1986). This design made it easy to reconfigure the game system for other scenarios allowing players to build their own scenarios without programming skills. *Carriers of War* came packaged with six distinct scenarios to play and instructions on how to design your own. More than just a game, with *Carriers of War*, players were purchasing a customisable game system.

Carriers of War was the first of SSG's game systems. There were many others, such as the *Battlefront* game system designed for land battles of the Second World War. The original *Battlefront* system was launched in 1986 for the Apple II and Commodore 64. It simulated the challenges of real command, including those of managing supply and troop fatigue. In response to player requests, SSG released new iterations of their systems adding additional features. *Battlefront* update *Battle of Normandy* (1987) added climate types, so scenarios could be created for regions beyond Europe. The *Decisive Battles System* (1987) was a game system that addressed the challenges of battles of the eighteenth and nineteenth centuries[8].

Each issue of *Run5* featured scenarios for selected SSG game systems. There were always at least two scenarios in each issue. Each scenario featured an engaging narrative introduction that established the historical facts and set the scene of the conflict. If they were speculative history, a popular genre, they would frame the "what if" question to a moment in history. What if the allied ships arrived sooner? What if they landed at a less exposed bay? The scenario information in the form of maps and tabulated data were published in the magazine covering all the information for terrain, weather, ships and squadrons, scenario lengths and all the task group activities associated with the various forces. These data had to be entered into the game system manually by the player.

In the first *Run5* editorial, Ian Trout explains the benefits of the magazine and the joys of typing in a scenario explaining it is "a far cheaper, friendlier, and more versatile format than scenario disks … as well as providing an opportunity for those of you to contribute a scenario, article, letter or whatever" (Trout 1986). The entering of scenarios required a lot of data entry. In their second issue, Trout announced that scenarios would also be available on disk, a response to numerous requests for versions of playable scenarios that did not require the endless data entry. But these disk offerings were not the end of *Run5*. The magazine played a bigger role than just handing over data for new scenarios. It acted as a valuable conduit between the game players and the designers.

Computer Games and Magazines in the 1980s

Dedicated computer game magazines first appeared in the 1980s. These magazines played a vital role in defining what a computer game 'was' and the development of the identity of the 'gamer'. In his analysis of two early British magazines, Graeme Kirkpatrick traces the rise of the concept of "gameplay" (Kirkpatrick 2013). He maps how game magazines changed from treating games as just another kind of computer program within micro-computing, to a distinct cultural practice with its own descriptive and technical vocabulary. Like Kirkpatrick, Jaakko Suominen's analysis of computer game magazines plots the formation of a vocabulary that is specific to the medium – addressing how game reviews evolved to develop their own criteria to describe the medium rather than referencing other media or discussing games as generic software. His work presents a close reading of the Finnish magazine *MikroBitti* (Suominen 2011).

Mia Consalvo examines the idea that game magazines taught players how to be 'gamers' in a study of the US magazine, *Nintendo Power*, from 1988 (Consalvo 2007). By the late 1980s, the dominant discursive constructions of gaming practices had been established. These included both the idea of 'gameplay', as proposed by Kirkpatrick, and the criteria used to define a computer game, as profiled by Suominen. Consalvo's research proposes that this new vocabulary and the knowledge system provided by the magazines operated as a form of cultural capital to a generation of Nintendo game players. Focused on the audience for Nintendo games in the early 1990s, her analysis looks at how *Nintendo Power* magazine helped define an understanding of what a gamer 'is'. Using Gerard Genette's definition of "paratext" referring to the assortment of discourses that directly inform the text from the outside, Consalvo reveals how the magazine shaped players' sense of the proper way to play videogames and argues for the magazine's importance as a "paratext" for the way it structures and gives meaning to games (Consalvo 2007).

Run5 played an important role in supporting SSG's games. The magazine provided players with material that helped shape their gaming skills. *Run5*, however, does not simply sit within the trajectory of game magazines of the 1980s mapped by these earlier analyses. For whilst *Run5* was engaged with defining what a computer game was, it was not only part of the recent cultural construction of games, gamers and gaming associated with the microcomputer and console. It belonged to the established tradition of wargames and, in particular, wargame magazines.

Wargame Magazines

The tradition of wargame magazines dates back to the 1960s with popular publications like *The General*, the mouthpiece of influential American wargame publishers, Avalon Hill. Magazines were an important part of

wargame culture and, in the 1970s and early 1980s, there were numerous wargame magazines. A survey published in *Moves: Conflict Simulation Theory and Technique* magazine in 1970 reviews more than 50 individual publications (Phillies & Campion 1973). Jim Dunnigan, editor of *Strategy & Tactics* magazine wryly explains this plethora of publications: "because wargamers are such a well-educated and literate lot, there are a disproportionate number of magazines serving the hobby" (Dunnigan 1997: 282). The pleasures of wargames are both scholarly and analytical. The games themselves were apparatuses for investigation and experimentation. "The object of any wargame (historical or otherwise)" explains Dunnigan, "is to enable the player to recreate a specific event and, more importantly, to be able to explore what might have been if the player decides to do things differently" (Dunnigan 1997: 13).

The General proclaimed its purpose was "solely for the cultural edification of the serious game aficionado, in the hopes of improving the game owner's proficiency of play and providing service not otherwise available to the Avalon Hill game buff"[9]. *The General* featured new scenarios, gameplay accounts, and numerous articles on game tactics, game variants, and military history. This detailed investigation of military history is done primarily through the conversion of history into analytical data, its implementation and interpretation in Avalon Hill's game systems. Players' voices are heard throughout the magazine, which featured a substantial readers' letters section, dedicated question and answer, and an "opponents wanted" classified section. Many articles even included a call-out for reader feedback regarding factual errors, game system performance, specialist knowledge, and recommended game play strategies[10].

Manual Wargames as Paper Computers

SSG's magazine, like *The General,* directly serviced a player community, instructing them how best to play and personalise their game systems, coupled with an invitation into a dialogue with the designers. Rather than just being a continuation of the traditional wargame magazine culture into a new medium, however, *Run5* also brings something particular to its readership. The magazine taught manual wargamers how to play computer games. It is easy to assume that there would be some natural evolution from the board game to the computer, particularly as board-based wargames are basically procedural systems. In 1981, Chris Crawford, one of computer games' 'founding fathers', warns gamers against this misperception:

> wargames on personal computers will not be just like board-games… A computer wargame must be optimized to take advantage of all the strengths of the computer. At the same time, it must avoid the

> weaknesses of the technology. They will necessarily be very different from board-games.
>
> (Crawford 1981: 3)

The main issue identified by Crawford in his article is that the hardware of the microcomputer was hardly up to the task of handling the complex systems of a manual wargame[11].

Despite Crawford's reservations on the capacity of microcomputers to support wargaming, their advantages were generally agreed upon. These include: instantaneous set-up; no maps and counters to keep track off; simpler rules as the computer does all the calculations and bookkeeping for movement; combat results; terrain; weather effects; etc (Crawford 1981; Dunnigan 1997; Murphy 1984). Dunnigan, however, shared Crawford's concerns over the computer's inability to match the flexibility and complexity of manual game systems. Dunnigan's other concern was that computer games did not reveal their internal workings in the manner of board games, reducing the kinds of engagement that players could have. The advantage of manual wargaming, he argues, is that it allowed the player complete access to the game system. Dunnigan explains that to play a board game requires a detailed study of the manual, the rules and the assets, exposing all its workings to the player. This he identifies as central to the appeal of wargames – so much so that some people did not even play the games, preferring just to read them and study them.

> "Reading" games rather than playing them is quite common…Many gamers "collect" games. They buy them, but never play them. This does not mean that they are not used. Quite often, the hobbyist will spend several hours with the game. The usual procedure is to lay out the map, examine the pieces, read the rules and scenarios and perhaps place the pieces on the map, but that is generally as far as it goes. The player has been satisfied with experiencing the dynamic potential.
>
> (Dunnigan 90)

According to Dunnigan, much of the pleasure of a wargame was the tinkering with it, rather than actually playing it. He explains,

> Just to sit down and attempt to develop different … deployments for a particular game is an interesting exercise which many players indulge in…Tinkering is a low-hassle, mentally stimulating, take-things-as-they-come activity. Playing the game tends to be a bit more intensive even if you're only playing against yourself.
>
> (Dunnigan 57–58)

Matthew Kirschenbaum confirms Dunnigan's view on the pleasures available in manual wargames for tinkering with the systems. He also

remarks on the powerful impulse of narrative as another pleasure of wargaming, that the procedural nature of the wargame supported narrative agency. A player could, for example, manipulate the game's data to generate narrative accounts of speculative history (Kirschenbaum 2009). Kirschenbaum describes board wargames as functioning as "paper computers": open systems that could be taken apart and put back together again. Compared to them, a computer game is a black box where the source code and underlying model is out of reach (Kirschenbaum 2008).

Run5 – A Design Magazine

SSG addressed the cultural shift from the open system of the manual wargame by using *Run5* to provide its readers with information about how their computer game systems worked. The original games themselves came packaged with design manuals. For example, *Carriers of War,* has a 15-page Player Manual featuring data for six scenarios, but a 25-page Design Manual featuring a tutorial on how to build a scenario. In addition, Roger Keating penned a series of articles for *Run5* explaining to readers how the hidden systems within the computer operate. In Issue 1, he explained his approach to designing in machine language. He introduces players to the limitations of the computer, sharing how designer, Ian Trout, had to "learn about computers and come to terms with the endless stream of memory constraints, design restrictions, interface problems and last, but not least, at the end of all this a computer opponent had to be there to provide a worthwhile contest". Keating narrates how the necessities of programming in machine language dictated terms for Trout's design (Keating 1986). He takes the readers though the coding of a routine to measure and map distance between hexes, publishing the machine code in the magazine so its working is exposed. The article is one of a number by Keating featuring discussion of actual assembly code in the magazine. SSG assumed that their players wanted to understand the logic of how the game systems work. In later issues, Keating talked readers through a series of examples including, the limits of enemy AI on the computer, map generation and database construction. Whilst playing computer games may not have provided the design education that board games offered, through *Run5*, SSG worked to ensure their audience understood what was happening within the "black box". The magazine provided players with information on how the operations of the computer impacted on gameplay.

In understanding how SSG's game systems worked on the computer, players were better able to fully enjoy the games and create their own scenarios. To encourage feedback and the sharing of content, *Run5* featured regular design competitions, publishing the winning scenarios within the magazine. Other features included the publication of design notes and tutorials, technical data on ships and planes, plus orders of

battle. These resources were designed to facilitate deeper engagement with the game systems and assist gamers to build their own scenarios.

Keating's programming articles offer the most explicit articulation of the underlying game code but explanation of the relationship of programming to design is threaded throughout the magazine, and featured in the Q&A. Gregor Whiley's design notes for *Russia* (1987) in Issue 6 take the player carefully through the allocation of memory, explaining how Keating (the programmer) had to scrounge memory to complete the game displays. The article is dedicated to explaining what the computer is doing, including why wargaming on the computer is more restricted than manual game play. Whiley reflects on how many computer wargames, available then, let the human player freely move their units, which resulted in an uneven contest because the computer could not hope to match the agility of the human imagination and respond as flexibly with its limited processing power. To address this issue, he explains, SSG creates its movement routines so that both human and computer use the same mechanics, and how this equitable environment creates better competition. He then describes how decisions are made and orders issued in *Russia* (Whiley 1987). The game's routines are not simply chained, making for predicable results, but each routine is itself a separate decision, the result of one routine then becoming part of the data assessed by any interrelated routines. This, argues Whiley, allows the AI to work with the computer's strength (i.e. processing data) rather than pushing the memory limitations.

In *Run5*'s regular Q&A column, player queries reflect the keenness to understand what the computer is doing, in particular factors affecting combat that are not transparent to the player. SSG's answers to players explain that some issues are caused by tasks that the computer struggles with, such as "vectoring fast task groups in *Carriers of War*", and the need to operate within the system's memory constraints. SSG is more than happy to explain how its game systems work and a question in Issue 2 regarding what actually happens in air-to-air and air-to-surface combat in *Carriers of War* is answered in great detail. The answer takes the reader through the kinds of variables affecting how the computer handles combat – searching, finding a target, engaging, attacking, damage and survival – including how weather and time of day affect these things and the presence of a randomizing element in each decision made by the computer (SSG 1986a). However, a request that they publish the actual details of their combat mechanism so players can calculate the success or failure of a mission before embarking on it, is met with the following explanation of wargaming on the computer:

> SSG does not wish to produce games that must be played on a calculator. The whole idea of using the computer is to remove the burden of bookeeping from the player. This also enables us to remove information that an equivalent boardgame would have to present.

> We see this as a bonus. Players should have to make decisions based on the same sort of information as the commanders that they are emulating. Using the computer also allows the mechanisms to be quite complex and detailed. Since all combats are treated individually, working out the figures for even one mission would be quite a job, as well as a waste of time in terms of getting an advantage in the game. That sort of stuff is best left in the computer, where it belongs. (SSG 1986b, "Q&A" 32)

Even the irregular reviews of other company's computer games can be understood as guides to teach wargamers how to be computer gamers. A review of SSI's *Battle of Antietam* (1985) in *Run5* (Issue 3), by subscriber Mark Holman, is an example of how the design of the computer game is interrogated in relation to more traditional board-gameplay. At this moment in history, the role of the computer is the focus of the reviewer's discussion. The author's careful assessment of the potential and the limitations of the microcomputer technology on wargaming illustrate Lisa Gitelman's observation that new media technologies require new "'protocols' – behaviours and infrastructure that eventually become 'self-evident' and invisible as the result of social process" (Gitelman 2006.7). The early issues of *Run5* teach manual wargamers how to be computer wargamers. In later issues, addressing the functioning of the computer becomes obsolete.

Run5: A Dialogue with Players

Through *Run5*, SSG cultivated a conversation with its audience and communicated directly to gamers about issues like errata and bugs. Their relationship with gamers was a convivial one and, like *The General*, they welcomed feedback. The magazine kept SSG's player informed about the work being carried out by the developers, discussing titles under development and keeping the reader abreast of their progress[12]. Staff are credited and thanked for their contributions, new staff announced and SSG's trips to the Origins International Game Expo in the United States well-documented.

Gregor Whiley's amusing narrations of the in-house SSG game challenges that featured in *Run5* present the design team as dedicated gamers, like their readership. These articles are fascinating historic records of SSG's games as played by their designers. Newman champions the need to record the played game, ideally in its historical moment. He proposes that these records are more significant for preserving game history than keeping games playable as software (Newman 2012). *Run5*'s written accounts of game creators competitively playing their own games with each other offer another level of information.

Run5 also chronicles changing commercial realities that the company and industry faced. As more games entered the market, a struggle

ensued over retail shelf space. In 1989, SSG makes an appeal to its players in the editorial of *Run5* (Issue 12):

> It seems that a number of the large software distribution chains in the US have decided to dramatically reduce the number of titles that they carry. In this process, Historical Wargames are slated for massive reductions or even elimination as a category. Obviously, this will mean a reduced supply. We will find it harder to sell games, and you will find it harder to buy them…
>
> (Trout 1989 "Editors Chance": 3)

Historical wargames were particularly struck by the crowding of the market as computer games became increasingly mainstream and were identified more with accessible fun, childhood and the plug-and-play ease of console games. The responses published in *Run5* to SSG's appeal document how people purchased games in the era. The letters describe the kinds of local stores and mail-order services used to purchase games by their audience. They also describe the decline of strategy wargames and the rise of the fantasy genre, and driving and flight simulators, as the market for computer games changed from early adopters of technology (including wargamers) to a more diverse audience for games[13]. The letters include a precise description from Major Ronald Burkholder as to the American Military's investment in computer wargames, and their distribution through the Army and Air Forces Exchange Service. Whilst the military is taking care of wargamers, the overall landscape for computer game sales is changing. Robert Gurske of Ware Neck, Virginia, USA, compared the serviceable stock of computer wargames at the local hobbyist store, Waldern Software, with the new mall chain, Electronic Boutique, where few computer wargame titles were stocked and only the very latest releases of any computer and console games were available (Anonymous 1989).

We learn the most about *Run5*'s user community from their letters. Unsurprisingly, there is a heavy American focus but gamers come from all over the world[14]. There was a strong military presence which stretched from generals to privates, and *Run5* received a number of letters offering minor corrections to ships and squads in SSG's games from those who served in them. Knowledge of military history was highly valued across the community. It formed a central part of their cultural economy and there was a prevailing critical engagement with historical narrative and speculative history. The praise for winning entries of SSG's scenario design competitions expressed how historical accuracy was respected. It was, however, the ingenious ways that scenario designers manipulated the game systems to stay true to historical simulation that were most admired.

The scenario design competitions provided an opportunity for SSG to see how a cross-section of players used their game systems. The scenario design tools were, for many players, the reason for their ongoing

engagement with SSG's games. The letters section often featured praise for the game systems and request for more features. In his 1987 letter, Robert Sendler states:

> I own many computer games, covering many subjects, but I find your games to be the most flexible and ultimately the most long lasting… So I would like to put in my vote to continue structuring your games with the design kits. Even, as in the case with Russia, it means just being able to totally control every factor in the game[15].

The flexibility of SSG's game design systems distinguished them from the competition. Paul M. Nation from Little Rock, Arkansas, writes to *Run5* describing how he had dedicated many hours trying to break the copy protection on SSI's games to modify the databases before discovering SSG's games. He explains "that until SSI allows for scenario variations, SGG will be the supplier of wargames in my future"[16].

Run5 Community and Co-creation

SSG's game systems invited their audience to be co-creators and through *Run5*, SSG produced an analogue system for community sharing. In supporting co-creation through their game systems, SSG foreshadowed the incorporation of modding as a business model. The type of productivity offered by their game systems fostered deeper engagement with SSG's product, building brand loyalty and extending the life of their games, features identified by Henry Jenkins and Julian Kücklich as some of the commercial advantages that the rise of modding in the 1990s brought to the games industry (Jenkins 2006; Kücklich 2005). The creation of new scenarios by SSG and their players extended the shelf life of SSG games and was counter to the overall trend in microcomputer games, where rapid advances in technology quickly rendered software and platforms redundant. SSG's games and game systems from the 1980s continued to sell into the 1990s. It was a model that was not without issue as older games were rarely stocked by retailers.

Audiences Online

In January 1988, SSG went online with CompuServe and Applelink. Gregor Whiley recalls that their biggest community was on CompuServe, where SSG hosted a forum for their games. Subscribers to CompuServe could log in to SSG's forum and browse the text-based forum's topics. Here SSG made announcements about their games, joined in with the player chat and most importantly answered questions related to the game systems and provided product support for their games[17]. At this time, there were few places that players could go to ask for help regarding

computer games. Company magazines like *Run5* were very unusual. As SSG's games were released for multiple home computer platforms, each with their own idiosyncrasies, there were lots of sound technical reasons for the games to fail to work properly. Whiley recalls how valuable CompuServe was at the time, "as people would take their games home and they would not work on their machines!"[18] CompuServe was a way to get real support for technical issues. The forums were also a wealth of information on the game systems and their rule sets, providing discussion on gameplay strategy and assistance with scenario design issues[19]. SSG expanded their online services for players over the next few years. The arrival of the World Wide Web shifted users from the gated user-pay community of providers such as CompuServe and by 1996 SSG had a dedicated webpage.

In 1996, SSG stopped printing *Run5*. The costs outweighed the revenue. *Run5*'s audience had never really grown from the core of players who had been subscribers from the beginning, and although these subscribers were all over the world, from Tokyo to Leningrad, the proud internationalism of the audience was just another cost. Online, SSG promised that their website would be able to provide support, information and new scenarios for free. There would be no constraints on space when replying to letters and queries and these interactions would be easier and faster (Hand 1996). The new generation of computers ran game systems whose scenarios required substantial data – far too laborious to type in. *Run5* online promised to continue the flow of articles and scenarios. But it never really did. Issue 25 went up online but that was it for the discursive structure of the magazine with its letters and player contributions. SSG used the web for news about their games and continued to share scenarios online with their player community and these can be found on the archived pages of SSG's website on the Wayback Machine. The discussion forums, however, are not archived. Lost, too, are the discussions that occurred on CompuServe and Applelink. Those records vanished with SSG's cancellation of their subscriptions to the commercial services. Email became a popular means of communicating directly to SSG but, unlike the published letters, these correspondences were not archived. The lack of records of SSG's first websites and their online communication through service providers CompuServe and Applelink are an example of the fragility of digital records.

Conclusion

Run5 magazine provides a valuable account of the user productivity that surrounded the wargames of SSG. It represents a clear alliance to the established culture of wargaming with its tradition of magazines, and support for user-made content. Early issues of *Run5* served to educated wargamers as to how the gameplay of the manual wargame had been

adapted to function on the computer. It was directed to wargamers who were familiar with the procedural systems of the manual wargame operating like 'paper computers' with the workings exposed to the player to tinker with. Supporting wargame fans' expectations to modify and adapt scenarios formed a key part of SSG's designs for the computer and *Run5* played a critical role in facilitating this. The dialogue *Run5* created with SSG's fans survives as a historical record of the company and its community of players at this historical moment of transition.

Wargames are an often forgotten part of the story of videogames and little attention has been paid to the central role that user-generated content played within this culture in the 1980s. The 2014 announcement that SSG was going to make all issues of *Run5* available online as PDFs on the Play it Again website initiated a discussion with members of SSG's early community, those fans who subscribed to the original magazines. One of the responses received was from Don Ursem[20]. Ursem's enthusiasm for the news was not fuelled by nostalgia, but focused completely on *Run5*'s value as a design resource for using SSG's games systems to simulate speculative histories of warfare. He intended to use SSG's 1993 *Carriers of War II: Construction Kit* to assist an author friend to "game" some of the threads of alternate history for his next book. He writes:

> Even today in 2014, CCAW seems the best ever classic naval warfare simulation …the only one allowing both ship and air operations to be accurately modelled … RUN 5 Magazine contained a wealth of now priceless how-to information on building extra ships and custom scenarios for CCAW, as well as similar coverage for other SSG games. As such, RUN 5 is not just another old computer magazine …but truly a goldmine of wargamer information … and a true piece of computing history[21].

It is fascinating now to witness how *Run5* continues to be valued as a design resource by SSG's fans. This creates interesting questions for collecting and exhibiting documentation that captures what audiences did with the design object, what Newman describes as the "played with game" (Newman 2008). The paratexual materials that surround games of this era have been clearly identified for their importance to preservation (Lowood 2004, 2009; McDonough et al. 2010; Monnens et al. 2009; Newman 2012) and Newman has made a case for their ability to be more informative about the played game than playing the "preserved software". *Run5* is a record of players' relationships to SSG games and game systems over a decade. It preserves a sense of the changing relationship between the audience and the microcomputer and further demonstrates the importance of co-creation. The magazine records the transition of wargaming fans to the new medium of the computer.

Run5's traditional print format has made it a stable archive compared to the fragility and ephemerality of online resources from the later period. *Run5*'s role as a user's guide to the game systems of SSG makes it invaluable for understanding those games and their historic community and, as Ursem's letter reveals, it remains a key resource for fans activating those game systems today.

Notes

1 Personal communication, Roger Keating, 16 June 2013.
2 Ibid.
3 Keating was invited to work from SSI's offices as a freelancer. Ibid.
4 *Conflict* for the Apple II was self-published in Australia by Keating Software Inc, selling approximately 50 copies. Keating sent copies of the game to American publishers and reviewers. SSI contacted him and offered to publish the game boxed with another game called *Rebel Force*. They were published together by SSI as *Computer Conflict* (1980). Ibid.
5 These fans were mostly his students and peers from Apple User Groups who rated Keating's games highly.
6 SSI CEO Joel Billings was initially upset when Keating founded SSG, not least because the companies' names were very close. However, on meeting Trout and Keating at a U.S. Origins game convention, the three passionate wargamers quickly smoothed over any issues. Ibid.
7 SSG had been in discussions with publishers Metagaming for the rights to use *Stellar Conquest* and felt they were close to signing a contact when Metagaming was brought by wargames behemoth, Avalon Hill. Not keen to go into business with Avalon Hill, they reworked the game to become its own concept, creating *Reach for the Stars*.
8 The additional features for the Battlefront System update for *Battle of Normandy* (1987) were requested by users. These included the ability to: select climate types; the movement of divisional headquarters; river forging; and the interrelationships between battalion types. These requests reveal the level of detail that concerned SSG's audience of scenario builders. A later upgrade to *Halls of Montezuma* (1987) added WarPaint and WarPlan editing tools, allowing users to design their own symbols and map icons. SSG made sure all of its updates were backward compatible so players' scenarios remained accessible in the versions of the Battlefront system with information on any extra fixes printed in *Run5*. *Carriers of War* was updated in 1991 (*CAWII*) and the *Carriers of War Construction Kit* (IBM) offered a separate editing system. This was done to address the scale and capacity (and expense) of the new scenario editor. It heralded a split between those users who just wanted to pay for the playable game and those who wished to get their hands on the toolkit to create their own scenarios. The *CAWII Construction Kit* brought several major improvements, the most significant being the WarRoomTM, an AI system that allowed the AI to be tailored for each scenario, handing over more control to the user in their designs.
9 Mission statement printed in the front piece of each issue of *The General* during the 1980s.
10 Surveys featured in each issue of *The General*, asking readers what they were playing. *Strategy and Tactics* ran up to 13 reader surveys a year.
11 Crawford also felt that there was a lack of skilled programmers able to craft worthy AI from a micro-computer.

12 A rather poetic feature of the *Run5* life span is the 'Battle of Appomax', a 'new' title that is featured in the first issue of the magazine and whose impending arrival weaves its way through the next decade of issues. The much-desired game never sees the light of day. Originally too ambitious for micro-computers, it becomes a casualty of the changing nature of computer games.
13 Several readers cynically urge SSG to publish a fantasy strategy to capitalise on the genre's popularity. Ironically, in 1989, SSG publish Steve Fawkner's fantasy strategy game *Warlords* (after Keating worked on redesigning the game's AI with Fawkner). It was a very successful game, launching the *Warlords* series.
14 The mailing list for *Run5* gave SSG a sense of who their players were. Roger Keating recalls that one of their subscribers was the Italian Ambassador to Moscow.
15 Robert Sendler, Blytheville, Arkansas, *Run5* Issue 6, 1987, 3.
16 Paul. M. Nations, Little Rock, Arkansas, USA. *Run5* Issue 11 January 1989, 3.
17 Keating recalls the original forum supported 120 characters a second. Personal communication, Gregor Whiley and Roger Keating, 2 March, 2014.
18 Ibid.
19 Ibid.
20 Don Ursem was designer of games of the early 1980s, including *Star Hyperion* (1981), for the Atari 800, a strategic simulation game of war in the far future.
21 Comment posted in Stuckey 2013.

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4 Keeping the Spectrum Alive

Platform Fandom in a Time of Transition

Jaroslav Švelch

Computer and videogame cultures seem to have a paradoxical relationship to temporality. On the one hand, they are obsessed with the future. Game advertising keeps selling "revolutions" to boost sales of the upcoming generation of hardware and journalists are anxiously awaiting every next big thing (Dovey & Kennedy 2006; Newman 2012). On the other hand, players and designers alike are nostalgic for the past. They long for the bygone (or imagined) times of simpler, purer games and repurpose antiquated visuals of early games into "retro" aesthetics (Garda 2014).

Digital games scholarship has already documented both of these extremes. But not all games' hardware and software can be labeled as either novel or retro. More of it is likely to be moderately new, or just about to become outdated. That is why I want to look at what is happening in computer game communities midway *between* these two points. I will focus my attention on a platform which is neither cutting edge nor retro: an aging machine which is being replaced by the next, more powerful ones, but still kept alive in a highly specific local context.

This chapter will reflect on an example from early 1990s Czechoslovakia, where an active community of Sinclair ZX Spectrum users survived despite the invasion of 16-bit computers. I will draw from *ZX Magazine*, the only Czechoslovak periodical dedicated exclusively to the Spectrum platform, to examine the experiences and discursive strategies of users who stuck with their old hardware despite its seemingly imminent fall into obsolescence. Analysis of this material will help us understand how digital game fans have lived through, experienced and discussed the history of computing and digital games, and digital game platforms in particular. A closer look at a community around an aging platform may complicate some of the current takes on digital game obsolescence and the role fans play in it.

This chapter undertakes a qualitative analysis of the 1990 to 1994 issues of *ZX Magazine*. In the 26 issues[1] of the magazine published during this five-year period, I identified articles that explicitly commented on the platform, and excerpted the comments[2]. Using thematic analysis, I have identified three categories of user strategies to keep the platform

alive: *treasuring* the history of the Spectrum, *squeezing* the most out of the platform by using programming know-how and coding tricks and *extending* the platform by connecting it to various peripherals and enabling it to communicate with newer computers. After laying out the theoretical and factual background of the research, I will discuss these three categories. Afterwards, I will focus on the moment of parting with the platform and the community.

Resisting Obsolescence

Over the years, we have become accustomed to the fact that machines that we play on become old and outdated. Sustained sales of computer and videogame hardware are predicated on the continuous process of technologically and socially produced obsolescence. As Sterne has noted in his essay on hardware trash, "the computer industry has applied the logic of planned obsolescence to media hardware more thoroughly than any other media industry before it" (Sterne 2007: 22). After several years, a computer that was once *new* becomes merely *useful*, then *obsolete*, and finally *trash* – or in Swalwell's words, *detritus* (Swalwell 2007). Manufacturers phase out their support, new software stops being compatible. Although physical deterioration plays its part in this process, more often than not the hardware is still functional or repairable. The machines "are only partially used and discarded when a new version, model, or upgrade becomes available on the market" (Parks 2007: 35). This logic of supersession is reflected in linear historical narratives of games, punctuated by the moments at which the new generation "replaces" the previous one (Newman 2012).

Critical explorations of hardware obsolescence tend to see it as a process that cannot be inhibited or reversed; it is viewed as absolute. Slade attributes it to the power of advertising, which creates dissatisfaction with the old and a desire for the new. "When dissatisfaction and desire reach a peak, we acquire the new and discard the old" (Slade 2007: 265). In other words: "Invariably, after you buy the newest electronic widget, you dump the old one" (Slade 2007: 268). Sterne mentions the coercive nature of hardware obsolescence – sooner or later, if people want to keep up, they have to switch. However, he does admit that "some users will persist for years with an old machine until they are forced to update or upgrade" (Sterne 2007: 24).

Let us look more closely at these pockets of persistence. Some users will run the old and the new machines concurrently. Others will refuse to "dump" the old machine, because they have sentimental attachment to it – or because they see it as still having future utility. There will be even more people who simply cannot afford to switch to a more powerful computer. As Murdock et al. have found in their 1987 survey of information and communication technologies use in the British Midlands,

70% of users were still clinging on to the already obsolete tape technology as their software and data storage medium (Murdock et al. 1994).

Obsolescence therefore does not strike at once – it is anticipated and mediated by marketers, journalists and user communities. Individual users experience it as a transition rather than a switch, and such a transition can be a complex process on both individual and social levels, involving questions of community, technicity and nostalgia. Transitions unfold at different paces in different contexts, and lifespans of hardware "generations" can significantly overlap. By focussing on these transitions, digital game historians can free themselves from the shackles of the linear narrative dictated by hardware manufacturers, and tap into the discussions and meanings of "generations" and "platforms" as they emerged in particular historical situations.

People Around Platforms

Like film, TV series or comics, computer and videogames attract followings. A person can identify as a fan of a particular game (Consalvo 2003), or as a fan of videogames in general – the latter would sometimes call themselves a "gamer" (see Shaw 2010). Both of these avenues of fandom align with well-established categories of media consumers – fans of a particular media product, or fans of a particular medium, such as "movie buffs" or "opera enthusiasts" (Jenkins 1992). Additionally, people can identify as followers of videogame companies. The term 'Nintendo fanboy', for instance, enjoys a common currency in gaming media. Nintendo fanboys are seen as unconditional supporters of the brand, fans of the games produced for its machines, and obsessive collectors of Nintendo consoles, games and memorabilia (Fahey 2011). The reasons why these fan communities emerge can be both symbolic and practical. Nintendo fans may form communities to share their experiences of playing Nintendo titles or engage in nostalgic ruminations on Nintendo's history. At the same time, users of a particular machine may bond to trade games and know-how, including both walkthroughs, and – in cases of home computers – the ways of modding or programming one's own games.

In the early history of home computing, user communities were crucial to the development of computer literacy and computer game industries (Haddon & Gray 1994; Saarikoski & Suominen 2009). Computer owners were often hobbyists who purchased their machines not only to run commercial programs, but also to experiment and create their own software (Swalwell 2012). To share their know-how and trade software, they formed clubs and communities. The boundaries between these communities often reflected the technological architectures of available computers[3]. Early 8-bit computer models like the Apple II, TRS-80 or the slightly newer Commodore 64 and Sinclair ZX Spectrum were mutually

incompatible and their modest hardware did not allow for a common operating system to be installed. Games, especially, tended not to be written in higher level programming languages that could be adapted to different types of computers, but rather in machine code – that directly accessed the computer's hardware and was therefore far from portable. Much of the programming and user know-how was therefore closely tied to the specific line of machines, or *platform*.

We can understand a hardware platform as "an abstraction, a particular standard or specification before any particular implementation of it" (Montfort & Bogost 2009). Each platform, however, may have numerous material implementations. Usually, all 'versions' or 'models' of a platform are compatible in terms of the software they can run and are based on similar components. When speaking about the Spectrum platform, Czech journalists of the early 1990s often used the label "ZX Spectrum and compatibles", the compatibles including later Spectrum models and clones.

Speaking of fandom, I have mentioned that people grow attached to computers and platforms because of practical considerations, as well as personal, affective and communal experiences. The emergence of the first home computer platforms enabled these affections and experiences to be shared among users of compatible computers. The most dedicated Czechoslovak fans called their Spectrums 'darlings' and engaged in debates over the merits of their Spectrum as opposed to other platforms. Like Nintendo fanboys, they defended their platform of choice against the supporters of the competing Atari and Commodore, or later Amiga and PC, computers. Additionally, many of them went to conventions and actively participated in creating software or writing articles for periodicals like *ZX Magazine*. On these accounts, they conform to Jenkins' conceptualization of the *fan* (Jenkins 1992). However, I will avoid using this term in this chapter because of its anachronistic nature. In the early 1990s, Czechoslovak Spectrum supporters never called themselves *fans*, which was still a term mostly reserved for the domain of sports. They preferred the labels "*Spectrists*" ("spektristé") or Spectrum *enthusiasts* ("nadšenci" in Czech). I will opt for the latter. Spectrum enthusiasts turned out to be the largest 8-bit computer user community in Czechoslovakia, and after the country's breakup in 1993, the Czech Republic and Slovakia. This was due to a combination of several historical circumstances.

The Sinclair ZX Spectrum as a Platform

The Spectrum was one of the most popular home computer platforms in 1980s Europe. The "canonical" machine of this platform was the Sinclair ZX Spectrum, introduced to the U.K. market by Sinclair Research Ltd. in 1982. The computer was based on the Zilog Z80 microprocessor, had

48 kB of RAM[4], 256×192 pixels of color graphics facilitated by the ULA chip (manufactured by Ferranti), and a relatively user-friendly BASIC interpreter. At the time of its release, its audiovisual capabilities were relatively limited compared with other 8-bit computers such as the Commodore 64 or the 8-bit Atari machines; 16-bit IBM PCs also became available around the same time. But price, not performance, was the Spectrum's selling point. The unprecedented price of 175 British pounds reflected the machine's low manufacturing costs (Adamson & Kennedy 1986). The original Sinclair machine was apparently not 'made to last'. Although stylish, it looked tiny and fragile compared with the Ataris and Commodores of the era. Its notoriously unreliable calculator-style rubber chiclet keyboard would often break after a period of intensive use. The machine connected to TV sets instead of monitors. It did not contain any data storage device, and the common audio cassette became the primary medium on which Spectrum software was distributed.

Shortly after release, the Spectrum experienced a major shift in use. Advertised as the cheapest gateway to computing, and intended for education and home applications like accounting, it soon became primarily a gaming platform (Adamson & Kennedy 1986). Thousands of games were produced during the Spectrum's 1980s heyday, many of which featured memorable breakthroughs in both design and programming; the Spectrum scene spawned a number of renowned studios like *Ultimate Play the Game*[5] (later renamed *Rare*) and "legendary" programmers like Pete Cooke[6] and Jonathan Smith[7], revered by Spectrum communities.

Unlike many serialised platforms we know today (like PlayStation), the Spectrum did not have a more powerful successor. The models which followed the original machine received only minor improvements. The Spectrum+ had a more ergonomic keyboard; several "128k" models, released in the latter half of the decade, added memory and three-channel synthesised sound capabilities. Thanks to its popularity and relative simplicity, ZX Spectrum easily lent itself to cloning. Dozens of unofficial Spectrum clones were produced, especially in Central and Eastern Europe, including the Russian Pentagon or the Czechoslovak Didaktik.

The Spectrum's Bastion in Czechoslovakia

The Spectrum's journey behind the Iron Curtain, and into Czechoslovakia, was far from straightforward. No Western computers were imported into the country en masse because of import embargos[8] and the country's shortage of foreign currency reserves. First, Spectrums were individually brought into Czechoslovakia by the chosen few who had the chance to travel to the West. The Sinclair machine became the most popular computer to import, mostly thanks to its low price – which nonetheless amounted to months' worth of savings for Czechoslovak citizens. Its size probably also played a role, as it was easy to hide and

smuggle across the border, and thereby avoid exorbitant customs fees (Hertl 1991). Around 1985, a solid Spectrum community was already established in the country, spawning a prolific homebrew scene. At least 200 Czechoslovak homebrew titles made between 1984 and 1990 have been preserved in online archives. Text adventures were especially popular, as the local audience could not play Western ones because of the language barrier (Švelch 2013).

Thousands of imported Spectrums were soon complemented by domestic clones. Produced by Didaktik Skalica in Western Slovakia, Didaktik Gama was introduced in 1987. Despite import limitations, the company managed to secure the original Ferranti ULA chips. The Gama was therefore the first Czechoslovak computer compatible with a Western standard to be available to the general public at an affordable price – although production could not satisfy the demand (Bechyně 1989). After the fall of Communism, the Gama was followed by Didaktik M in 1990 and Didaktik Kompakt (with an integrated disk drive) in 1992. Their austere design and frequent malfunctions notwithstanding, Didaktiks were relatively sturdy machines. More importantly, all Didaktik computers were supported by the manufacturer until the mid-1990s, which contributed to the relative longevity of the platform in Czechoslovakia (and later the Czech Republic). Reliable statistics are lacking, but various sources have estimated that there were tens of thousands of Spectrum compatibles already in the country before the production of Didaktiks started (Libovický & Dočekal 1987; Zajíček 1987) and around 100,000 additional Didaktik machines were produced[9]. Given the population of Czechoslovakia (15 million in 1992), this meant there was roughly one Spectrum compatible computer per 100 people. According to *ZX Magazine*'s 1994 poll, about two-thirds of the readers owned a Didaktik and only less than one-third owned a 'real' Spectrum.

In the West, software for the Spectrum ceased to be published around 1990, whereas in Czechoslovakia, commercial games and other software continued to be released commercially until around 1995, mainly by two competing publishers: *Ultrasoft*, based in Bratislava, the capital of today's Slovakia, and *Proxima*, a company based in the smaller city of Ústí nad Labem and managed by the fresh electrical engineering graduate Petr Podařil, whom I interviewed for this chapter. Besides software, Proxima published *ZX Magazine*, the source of material for this chapter.

ZX Magazine ("ZX Magazín" in Czech) was founded in 1988 by David Hertl, a teenager from Northern Bohemia. It started out as a "samizdat" periodical circulating in dozens of copies at a time when independent publishing was technically illegal, and was "legalized" as a commercially viable business in 1990. In late 1991, Hertl, exhausted by running the growing magazine on his own, handed it to Proxima. Despite the changes in the editorial team, the overall style remained similar throughout the 1990s.

Right from the start, the magazine distinguished itself from other, rather utilitarian and technically oriented publications, by its uninhibited enthusiasm for the platform and its light-hearted tone; games were featured in every issue, along with programming tricks, interviews, tutorials and other materials. Some material was written by the magazine's staff, including Podařil and well-known Spectrum programmers Jiří Koudelka and Tomáš Vilím[10], but the magazine was dependent on contributions mailed in by – as Podařil called them – "enthusiasts"[11]. Despite the fact that it was a commercial venue, it directly interacted with the user community and trod the line between being a fanzine and a professional magazine.

Treasuring the Platform: Spectrum as a Foundational Machine

In 1990, *ZX Magazine* writers started to observe that the Spectrum was becoming old. For many of the readers, this was the year when they could, for the first time, freely travel to Western Europe – only to find out that neither equipment nor software for their machines was available in German or Austrian computer stores. At the same time, many of the prominent *ZX Magazine* contributors were leaving the Spectrum for 16-bit computers, mostly Commodore Amigas and PC compatibles. At this point, *ZX Magazine* writers stood up in defence of the Spectrum. One of the strategies they adopted was to point out that Spectrum was a platform to be *treasured* because of its rich history and its foundational role in the development of Czechoslovak home computing.

In terms of home computing history, the 1980s were a unique decade. In most of Europe, this was the period of 'first contact', when early home computer users purchased their first machines. The Spectrum often played the role of the 'entry' machine – the machine that invited people into the fascinating, seemingly limitless world of general purpose computing – despite its minute proportions. As one of the contributors eloquently put it: "It is almost unbelievable how much the little piece of plastic called Spectrum can contain, how many interests and passions it can fulfil, as well as play, adventure, collecting, tinkering and creativity" (Macků 1991: 25). The Spectrum marked the beginning of a journey – and, in some cases, a career. As another contributor, speaking on behalf of his homebrew collective, wrote: "All of us [...] who started on the Spectrum gradually progressed further and we all remained faithful to computing" (Hertl 1991: 25).

Writers referred to the computer as "the good old Spectrum" and used both the British diminutive "Speccy" and the Czech word "gumák", a local nickname for the machine, derived from the word "guma" (rubber), because of the original model's rubber keyboard. At the same time, they often brought up the character of Sir Clive Sinclair,

the quirky entrepreneur and inventor behind Sinclair Research who, according to *ZX Magazine*, "made it possible for even penniless people to own a computer" (Ručka 1992). The "Sir Clive" phenomenon was most likely imported into the Czechoslovak discourse from the British computing press, which personified the Sinclair brand to a degree comparable to Steve Jobs' Apple (see Adamson & Kennedy 1986). At the same time, the Spectrum was the symbol of 1980s Communist-era computing, and the attachment to it was often intensified by the experience of hardships one had to overcome to get hold of a computer under the Communist regime.

While acknowledging its rich history, *ZX Magazine* initially denied the possibility of the platform's demise and assured its readers of the Spectrum's continuing popularity. One of the contributors identified two main reasons for this: that other computers were too expensive, and "the amount of software we inherited from Western companies which no longer exist, and that is still being produced domestically for reasonable prices" (Ručka 1992). The vast libraries of widely available Spectrum software, including games, were indeed one of the most important reasons for sticking to the Spectrum. *ZX Magazine* did not only review new games, which were few and far between in the 1990s, but also games of special historic importance, offering for example a retrospective feature on games by the British programmer Pete Cooke.

Squeezing the Platform: Almost Better than the Amiga

When faced with the competition from so-called 'higher category' computers like the PC or Amiga, Spectrum enthusiasts found ways to defend the Spectrum's hardware. They pointed out that the platform still offered relatively limitless potential, which could still be *squeezed* out of the small machine.

Throughout *ZX Magazine*, the Spectrum's hardware was praised for its clever and elegant design. A former Spectrum programmer wrote that when programming on the machine, he felt like its creators "had him in mind" while designing the machine's ROM (Hertl 1991). More importantly, the Spectrum's hardware was portrayed as something that could be *under the total control* of the user. Compared with more complex platforms, the Spectrum was manageable: "A good [Spectrum] programmer has every bit under his control, knows what happens on every port and can therefore work miracles with this – some would say – toy. On the other hand, *Windows* crash [and no one knows why]" (Podařil 1993). This closely relates to the values of hobby computing. For many early hobbyists, the fascination with the computer arose from the fact that it promised a space of control – that the machine did what it was told (Swalwell 2012; Turkle 2005). On the Spectrum, no clumsy, overcomplicated operating system stood between one's machine code routines and

the computer. It was up to the coder to show how much he or she could achieve on this rather limited platform.

In the history of gaming platforms, especially those with fixed hardware features, software developers tend to keep getting better at leveraging the platform's capabilities – we can call this phenomenon *platform utilization progress*. Over the years, games for the Spectrum became more sophisticated and visually appealing, despite running on the same old machine. This made *ZX Magazine* writers hope that this progress would continue indefinitely: "Every year, I wonder if Speccy will survive the year, and every year I'm surprised that it does. This small computer is slowly becoming independent of time and the capabilities which it was originally given – the quality of programs is rising, although Speccy still remains the same as those eleven years ago… it would be a crying shame if this was to change […]" (George K. 1993: 9).

ZX Magazine game reviewers praised those games that were pushing the limits of the Spectrum, especially when they achieved something that had been previously thought unimaginable on an 8-bit machine. Being equivalent – or even better – than a Commodore Amiga or a PC game became a measure of quality. Thus, the game *Iron Lord* (Ashminster Computing 1989) was praised because it "again gets our computer closer to what people play on PC computers" (B.S. 1992: 38), whereas *Navy SEALs* (Higgins et al. 1991) "has gained a lot of supporters because it's almost identical with the Amiga version" (-JSH- 1993a: 7). In a jubilant review of *Darkman* (Box et al. 1991), the author exclaims: "[This game] is – attention! – better than the Amiga version. (…) [The Amiga version] may have more colors, better music and sound, but the graphics are appalling" (-JSH- 1993b: 3).

Official 8-bit conversions of 16-bit hits were especially important for boosting the confidence of 8-bit communities. The two major titles were *SimCity* (Probe Software 1990) and *Lemmings* (DMA Design 1991). The review of the latter sums up the effect these titles had on Spectrum fans:

> Have you often thought: I'll sell this piece of crap and buy a PC! But where to get money?! Don't worry, you don't need a PC, you already have it! Because this game […] has been a hit on 16-bit computers since 1991 and is now coming to the good old Spectrum. The eight-bit version is equivalent to the PC one, except for the monochromatic graphics. (B.S. 1992: 27)

As a software publisher, Proxima did its best to catch up with 16-bit production. George K. wrote the game *The Name of the Rose* (George K., 1991) (inspired by the novel by Umberto Eco, as well as by the Pink Panther movies), directly inspired by PC point'n'click adventure games like *The Secret of Monkey Island* (George K. 1993; Lucasfilm 1990). Similar claims were made about productivity software. *ZX Magazine*

celebrated the fact that there were desktop publishing programs and Windows-style file management systems even for "the modest Spectrum". In fact, one of Proxima's most successful products was *Desktop*, a word processing and desktop publishing application. All of these are examples of backward implementation of trends and innovations which started on more powerful machines.

The magazine ran numerous articles which showed that there was still a lot to explore and to learn about the Spectrum, including various undocumented features, subtle differences between ROMs of different models, or novel ways of tweaking the video memory to simulate higher resolution graphics or remove the Spectrum's well-known color limitations[12]. The drive to 'squeeze' more out of the machine is also evidenced in the introduction in 1994 of "Demorama", a running feature about local Spectrum demos, and a rather late effort to invigorate the relatively quiet Czechoslovak Spectrum demo scene.

The drive to learn the minutest details about the platform, and to push its limits through demos relates to the concept of *technicity* – the expression of one's identity through technical skills and knowledge, often valued in digital game cultures (Dovey & Kennedy 2006). That some of these skills were tied to a particular platform might have contributed to the users' reluctance to leave it.

Extending the Platform: Interfaces and Peripherals

When trying to extend the usefulness of Spectrums, commercial companies and hobbyists alike aimed to upgrade parts of Spectrum hardware and to connect machines to various kinds of peripherals or other computers. This was not an easy task, because the Spectrum did not have a standardised interface (comparable to today's USB) and was designed as a fixed rather than modular system. Despite these limitations, Spectrum enthusiasts welcomed any news of the platform's new possibilities. *ZX Magazine* published updates on the Spectrum's compatibility with peripherals produced or available in Czechoslovakia; tutorials on how to connect and control them constituted a large part of the magazine.

Among the most popular upgrades were disk drives and additional memory. Disk drives became a common data storage system for Spectrums and Didaktiks in the 1990s. A number of competing standards were imported from the United Kingdom, but the domestic D40, produced by Didaktik Skalica, became the most popular one in the country. According to *ZX Magazine*'s 1994 survey, the majority of their readers owned and actively used the D40. Several hobbyists found ways of expanding the machine's RAM to 80 kB or 128 kB. Some did the upgrades themselves, while others advertised their services in *ZX Magazine*. One of the ads read: "ZX 48 is dying, Sinclair 128 will survive the year 2000!" (Drexler 1993: 16). However, the usefulness of this upgrade was

debatable, as it did not make the machines fully compatible with the factory-made 128 kB Spectrums. Any games that required 128 kB of memory would have to be hacked and adjusted to function properly on the upgraded machine. On the other hand, the additional memory could come in handy for word processing applications.

Given the flimsy nature of the original Spectrum's rubber keyboard, replacing it with various kinds of makeshift keyboards was quite common in the 1980s, as it was the first thing one could do to extend the machine's lifespan. In the 1990s, some users started to connect "professional" keyboards to their Spectrums. In fact, it was not uncommon to connect peripherals designed to work with 16-bit computers: the Amiga mouse was suggested as the best to use with the Spectrum. A lot was written about printers and other topics including: how Spectrum enthusiasts could use their 8-bit darlings to capture video stills, receive teletext, control MIDI or exchange image files with IBM PC compatibles. All of these extensions could make Spectrum a more useful, 'professional' computer. It is difficult to estimate how many users actually took advantage of them, but the discursive power of these examples is clear – the very possibility of the Spectrum interfacing with modern hardware seemed to postpone its decline into obsolescence. Displaying a digitised photograph on the Spectrum might have lacked practical application, but vividly demonstrated the machine's interoperability.

Emulation was the ultimate expansion of the platform. Spectrum emulators for the PC and Amiga promised the possibility of maintaining one's software collections and making use of them on the more powerful machines: "You don't have to fear that you'll lose your ZX Spectrum. There are several simulation programs for IBM PC priced in hundreds of crowns that allow you to more or less satisfyingly run most ZXS programs and games, including color and sound" (-rex- 1991). To support this transition, a group of Spectrum users started a "consultation club for the users of Spectrum emulators for the PC" (ZX Magazín 1993b: 10). But the possibility of emulation also meant that physical Spectrums might be easily replaced by virtual ones. Therefore, I will return to emulation in the next section.

Parting with the Spectrum: It's Kismet

The valiant efforts of Proxima, *ZX Magazine* and the enthusiastic supporters of Spectrum could not stop people from abandoning their "darlings" for more powerful computers. *ZX Magazine* writers described this process as "mass migration" and wrote of the "Spectrum faithful falling to the temptation of 16 and more bits" (Dohnal & Krejčí 1993: 21). On several occasions, those who had just left the Spectrum community were jokingly scolded in the rumours section of the magazine.

Figure 4.1 Cover of the 3+4/1994 double issue of *ZX Magazine*, which demonstrates one way of extending the Spectrum. A colour dot-matrix printer commonly used with IBM PC compatibles has just printed out loading screen images from classic Spectrum games. A 5.25-inch floppy contains the Spectrum driver for the printer, published by Proxima. Reprinted courtesy of PROXIMA – Software.

As early as 1990, many prominent figures of the Czechoslovak Spectrum scene started to move to other platforms. As a *ZX Magazine* feature called "Wondering what they're doing now?" showed, they did so with various degrees of determination or sentimentality, and with different approaches to their machines as physical objects. František Fuka, perhaps the most influential and prolific local author of Spectrum games, switched to Amiga and simply sold his machine and "everything related to it". Another well-known programmer, Ondřej Mihula, kept

the computer, reckoning that his children would perhaps one day play *Knight Lore*[13] on it. Neither of them made any new software for the platform after 1990 (ZX Magazín 1992).

One of *ZX Magazine*'s former contributors, Czechoslovak Spectrum pioneer Jiří Pobříslo, sent a farewell letter, which the magazine published in full. Pobříslo describes his severance in rather emotional terms: "Please do not mail me *ZX Magazine* anymore. I love it and I root for it – but I have moved on. [...] Spectrum is fading from my view, and there are others around who are more knowledgeable than myself". The directional metaphor of "moving on" highlights the narrative conceptualization of one's personal progression through a series of technological tools. At the same time, it creates a bygone place to long for, and thus potential for nostalgia. Pobříslo admits that he keeps his Spectrum tucked away on top of a closet – a typical "marginal" space for storing used things in Czechoslovak households. Like several other users, he defends his decision to switch in terms of both practical and financial concerns: "The professional basis on which I make (but most importantly, sell) my programs has forced me to work on whichever computer (and in whichever language) that my customers require". Pobříslo ends his defense with the words "It's kismet", *kismet* being the Turkish word for *fate* (Pobříslo 1991: 15).

As I mentioned previously, *ZX Magazine* initially denied the potential demise of the platform. But in 1994, the magazine's contributors seem to be readier than before to give in and accept the *fate*. In the 3–4/1994 issue, we read in two different articles that "progress cannot be stopped". One of them adds: "There will come a time when most of you will replace your 8-bit darling with something bigger. It will most likely be a PC" (Podařil 1994: 57). For some users – especially those who were likely to sell their Spectrums and add the money to their PC budget – the parting with their "darlings" was expected to be difficult. As a 1993 article put it, "this painful occasion will surely affect your whole family and the more emotional characters won't be able to hold back tears" (Dohnal & Krejčí 1993: 80). The exaggerated tone of this quote does not deny the emotions one can feel when giving away a favorite object.

Emulators were supposed to make the parting easier. They were hailed as a "solution" to the situation when one had to sell his or her machine. Despite the users' documented attachment to their machines, no one at the time advocated using "real machines" over the virtual ones that could replace them. A possible explanation for this is that for 1990s Czechoslovak users, the Spectrum platform was often an "abstraction" – to use Bogost and Monfort's terms – rather than a specific computer model with particular material properties. Most of them used Didaktiks – machines that were mere iterations on the Spectrum 'idea'. An emulator could be the next iteration.

Besides staying 'faithful' or selling off their darlings, there were numerous other ways in which people moved to newer platforms. For many, the transition was smoother – they continued using their Spectrums while owning (or having access to) more advanced computers. Fan discourse on the pages of *ZX Magazine* nonetheless focussed on the melodramatic aspect of the transition.

The gloomy editorial of the penultimate issue of *ZX Magazine* published by Proxima's editorial team (5/1994)[14] used the funeral metaphor. Addressing his readers as "Dear bereaved"[15], the editor Tomáš Vilím admits that there are fewer and fewer Spectrum users. The only ones left are "diehards […] and those who cannot afford anything more expensive". He goes on to project Spectrum's future.

> 90% of today's Spectrum users will eventually buy something else, 7% will die off and the rest will soon become a user group of historical computers. They will painstakingly restore them, acquire various peripherals and discover long forgotten software. […] Basically, they will be something like vintage car, phonograph or music box collectors. It is hard to say how many years this will take, and whether it will pay off to store Spectrums in hermetically sealed boxes and wait for that time […]. (Universum 1994)

In other words, he is announcing the imminent end of the platform's initial lifespan and its potential revival as a collectible "retro" machine – a process later theorised by Swalwell (2007). Vilím's message is clear: Spectrum has become obsolete.

Despite this statement and Proxima's exit from the Spectrum market, the magazine continued to be published – although less frequently – until 2005, while changing hands several times and becoming more of a fanzine. Although gradually smaller, the core fan base has kept meeting at various conventions. At the time of writing, a fan group connected to *ZX Magazine* actively maintains the magazine's website.

Conclusions

This chapter has chronicled the efforts of Spectrum enthusiasts to extend the lifespan of their platform of choice. I have identified three basic categories of their activities: *treasuring* of the platform, *squeezing* the most out of it (while believing in further *platform utilization progress*) and *extending* it via peripherals and interfaces. All of these activities could manifest both through discourse and through practical projects. One could, for instance, squeeze the platform by writing an article about its capabilities or by creating a demo which proved his or her point. It is likely that fans of other platforms engage in similar kinds of activities, especially when threatened by the platform's imminent commercial demise (cf. Vanderhoef, Deeming and Murphy, this volume).

While some of the developments I have outlined may hold for other regions, this story was set firmly in the context of post-Communist Czechoslovakia. The country was one of the Spectrum's last European bastions, thanks to both its initial popularity as an unofficial import and its later sustained support from Didaktik Skalica. Importantly, Czechoslovak Spectrum fandom was intertwined with various small local businesses that provided software and services for the platform. The local community was largely autonomous in the 1990s, producing games and productivity software in Czech or Slovak for the Czechoslovak market, somewhat independent from (although familiar with) the developments in other countries of the region[16]. Only in the late 1990s did *ZX Magazine* start to closely follow the enduring and prolific Russian Spectrum scene, a topic which remains to be researched.

To some extent, the emotional attachment to the Spectrum was due to its being the first home computer Czechoslovak citizens could own. Given the difficult economic situation of the country, many people stuck with (or were stuck with) the Spectrum because they could not afford to switch to a more powerful platform. It rarely became 'trash' – more often, it was either stored as a memento or sold to offset the price of a new computer.

The dictate of obsolescence is neither immediate nor unconditional. The case study of the Czech Spectrum demonstrates that computer enthusiasts rarely just 'discard' old technology as trash. In this respect, scholars of industrialised obsolescence like Slade or Sterne submit to the same logic of unconditional succession of technological artefacts that they criticise (Slade 2007; Sterne 2007). It would be an oversimplification to say that a platform can be consumed or used up, as there is always more to learn about it. Different "generations" of hardware often live, more or less happily, next to one another. While some people in 1994 were playing *The Secret of Monkey Island* or *System Shock*, others enjoyed the vast libraries of 8-bit home computer software. Their darling Spectrums were more than mere instruments used to run games. They were also containers of memories, means of self-expression and reminders of the rich history of home computing.

Notes

1 The magazine was published bimonthly, with some exceptions.
2 All material was originally in Czech; I have translated the quotations used in this chapter.
3 A major Czechoslovak computer club, for example, splintered around 1982 into two sections based on the CPU that the programmers specialized in programming for (Libovický 2011).
4 A cheaper 16-kB version was also released, but soon phased out. Most Spectrum games require 48 kB of memory.
5 Ultimate Play the Game was among the most influential British game developers of the 1980s. They produced games like *Jetpac* (1983) and introduced the isometric 3-dimensional action adventures with Knight Lore (1984).

6 A prolific British game programmer, author of games like *Tau Ceti* (1985), which used real-time 3-dimensional graphics, which was considered a feat on the ZX Spectrum.
7 Author of popular titles like *Cobra* (1986). His games were renowned for fast animation, parallax scrolling and attractive gameplay.
8 For more about the impact of import embargos on hobby computing in the Soviet bloc, see Stachniak, 2015.
9 A figure provided in Didaktik's advertising, which seems realistic when corroborated with partial information in other sources (Kerekeš 1993; ZX Magazín 1993a).
10 Writing under nicknames George K. and Universum, respectively.
11 All of them were male; no article has appeared in the magazine that was written by a woman.
12 In hobbyist and gamer discourse, the specificity of a platform is defined not only by its "positive" parameters, but also by the deficiencies and quirks that programmers (and users) have to overcome. In the case of *ZX Spectrum*, the most notorious quirk was the "attribute clash", a phenomenon caused by Sinclair's thrifty design. The machine was nominally capable of displaying eight colours in two different levels of brightness. But to save video RAM, only two colours of the same brightness level could be used in one 8×8 pixel square (or attribute block). This meant that colourful animation was hard to achieve as sprites took on the colours of the background or vice versa. As my material shows, creative avoidance of attribute clash was repeatedly hailed as one of the most celebrated skills of Spectrum coders. For more details, see Hughes, 2014.
13 A groundbreaking isometric 3-dimensional action adventure game (Ultimate Play the Game, 1984).
14 The following issues were published by *Heptau*, a Prague-based group of Spectrum enthusiasts.
15 A literal translation of "drazí pozůstalí", a standard Czech expression used when addressing funeral guests.
16 Proxima tried to contact British companies in order to sell some of its software in the United Kingdom, but to no avail – despite the fact that their early 1990s production would have been competitive with the few British titles that were still coming out.

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5 Pirates, Platforms and Players

Theorising Post-Consumer Fan Histories through the Sega Dreamcast

Skot Deeming and David Murphy

Most popular accounts of gaming's history are situated within an industrial model of creative production focussing on platforms, their content and the companies that produced them. Omitted from these retellings are the fan practices which persist outside of conventional industry narratives. Accordingly, a console's history is often assumed to have ended once the industry officially pulls support; however, in many cases, platform-centric fan cultures thrive well beyond the moment of commercial expatriation. Using the Sega Dreamcast as a case study, and drawing from both Fan and Platform Studies literature, we will examine the post-commodity history of Sega's discontinued platform, specifically tracing the relationship between Dreamcast piracy and the console's thriving homebrew[1] production scene.

Our tale begins with an enterprising group of hackers and videogame pirates, collectively known as Utopia, engaged in the illegal copying and sharing of Dreamcast games. By conducting an illegal platform study, Utopia chronicled the platform's technical intricacies, producing knowledge that other groups would use – groups like Kallisto, who completely circumvented the Dreamcast's digital locks and created a directly playable .cdi file format. Initially shared secretly, the format spread through popular websites, exposing a broader community to the platform's file structures, including the information needed to create new games. Today, fans still produce and distribute Dreamcast titles using the .cdi file form, inscribing the platform with new cultural meaning and transforming an ostensibly failed commercial console into a successful creative machine.

The Beginning of the End

Understood as the first of what is regarded to be the sixth generation of home gaming consoles, the Sega Dreamcast launched in Japan in November 1998. After 10 months of anticipation, the console was released in North America, selling a record breaking 225,000 units in a 24-hour period (Perry 2009, para. 66). Just one month later, the Dreamcast launched in Europe selling more than 400,000 units in under two months (BBC online, Dreamcast Beats PlayStation Record 1999). There

were no rivals on the retail game market during the first seven months of its release, so the platform was an initial commercial success.

With a 128-bit processor and larger capacity disc storage, the Dreamcast was considered a leap forward from the previous console generation. Sony's PlayStation One, in comparison, was using a 32-bit processor, which ran considerably slower. Also included with the original hardware was a 56k modem – later replaced with a Broadband Adapter[2] (BBA) – making the Dreamcast the first console capable of facilitating online game-play. Central to the hardware's unique properties was Sega's introduction of a proprietary format for optical disc media, created through a partnership with Yamaha. GD-ROM's, also known as "giga discs" (CD Media World, 2000), boasted a 1-GB storage capacity resulting in larger games with more detailed graphics than Sega's contemporary market competitors. This new format could only be read using GD-ROM drives, creating a situation where Dreamcast games could not be copied on a home computer with a traditional CD-ROM burner. In addition to having impressive hardware, the platform was also accompanied by the launch of Sega Net, an Internet service provider allowing players to browse the web and play Dreamcast games online.

In spite of its initial reception, the console's popularity faded quickly, partly because of poor brand recognition. Although the Genesis (known as the Mega Drive outside North America) had situated Sega as a major industry player, the Sega Saturn had left its fan base sceptical of successive hardware developments. According to Montfort and Consalvo (2012), the Saturn

> was more expensive than other consoles in its generation and was not extensively supported by the company. Many gamers felt that Sega then tried to dump the Saturn with the early announcement of the Dreamcast and wondered if the same thing might happen again. (87)

Given Sega's recent track record, many were anticipating the competition's inevitable response. Sony's PlayStation 2 was released in March 2000, and it incorporated an additional selling point: the system also had the ability to play commercial DVDs. Considering the cost of DVD players at the time, and the eventual explosion of the format, the console provided additional value by serving multiple entertainment needs. After the PlayStation 2's release, Dreamcast sales dropped dramatically, and within a year the platform was officially discontinued, with Sega announcing "plans to restructure its business by focusing on selling software to its previous rivals" (BBC online, Sega Scraps the Dreamcast 2001).

Following this logic, the Dreamcast is commonly understood as a quirky industrial failure lamented by fans for being far ahead of its time. Such descriptions coincide with an industrial narrative of perpetual technological innovation, a perspective that research conducted in

the name of Platform Studies unwittingly reinforces. Digital platforms, as a result, are often cast as stable, monolithic objects, situated within a narrative of industrial evolution. Conversely, participatory audience practices disrupt and recode the perceived monolithic state of a gaming platform, specifically highlighting the fluid, rather than fixed nature of a console's cultural definition. To expand on this point, by combining Platform Studies methods with an active audience approach, specifically drawn from the interdisciplinary field of Fan Studies, we can better trace and understand digital platforms in relation to fan activity.

Methodology

In recent Game Studies scholarship, Platform Studies has emerged as a means of examining the material and cultural factors informing the creative production of digital works. In an approach that can best be described as a 'bottom-up' practice, the methodology seeks to investigate how the technical considerations of a specific platform inform the creation of digital content. Platform Studies demands close attention not only to technical considerations, but also to the means of production, interaction and consumption that inform the cultural conditions of a given digital device.

Before becoming a label for the book series, published by the MIT Press, Platform Studies emerged in response to a larger call for standardised Game Studies methodologies, beginning with Lars Konzack's "Computer Game Criticism: A Method for Computer Game Analysis". In the paper, Konzack outlines a holistic approach for analysing video and computer games, defining "hardware, program code, functionality, gameplay, meaning, referentiality, and socio-culture" as particular areas of interest (Konzack 2002: 1). Published in the December 2006 issue of *Game Studies*, Nick Montfort's "Combat in Context" builds upon this work, refashioning Konzack's seven-layer approach into a "five-level" methodology. Montfort's most significant contribution, in this regard, is the inclusion of the platform layer which describes the unique combination of hardware, software, and firmware[3] lying at the centre of a given digital device.

Building upon the platform layer, Montfort outlines four tiers comprising a five-level analytical framework, including code, form/function, interface, and reception/operation. The code layer is used to examine the underlying script running on a digital platform, whereas form and function offer a means of discussing the graphical elements and tasks that the software is meant to accomplish. The interface layer discusses how a user interacts with a particular piece of software, and the reception/operation layer is used to investigate the cultural considerations surrounding software, as users generate their own meanings and pleasures during interaction.

Platform Studies works to not simply study games and their reception; it claims to operate as a holistic and unified approach to videogame criticism, not only through the study of a game, but also the cultural, social and technological conditions surrounding its creation. Scholarship often provides a rich in-depth analysis of the inner workings of a specific device, providing a sociotechnical framework for understanding the content produced for a particular platform. Using this methodology, Platform Studies technically situates the industrial development of computational and videogame technologies, but rarely addresses how platforms become culturally situated beyond their commercial lifespan.

In *Racing the Beam: The Atari Video Computer System* (2009), Nick Montfort and Ian Bogost offer a series of case studies, each in relation to a single game developed for the video computer system. Discussion focusses on the hardware limitations that programmers had to wrestle with, specifically when programming games displayed on home televisions. Jimmy Maher's *The Future Was Here*: *The Commodore Amiga* (2012) describes how the Amiga's "tightly coupled network of specialised custom chips" (257) brought multimedia computing into the home. Intriguingly, Maher's analysis of the Amiga DemoScene[4] discusses a fan-oriented subculture, although the discussion still predominantly privileges industrial production, specifically commenting on the fact that many demosceners "moved on" to work in the videogame industry.

More recently, Steven E. Jones and George K. Thiruvathukal (2012) offer a case study on the success of Nintendo's *Wii*, a console partly responsible for the rise of casual gaming (*Codename Revolution: The Nintendo Wii Platform*). Their analysis focusses on Nintendo's powerful brand, particularly in relation to the console's popular Wii-mote, but they also discuss how fans learned to load independently developed (homebrew) software by exploiting the console through the "Twilight hack". Subsequent entries in the series have expanded the scope of Platform Studies to include technologies that have presumably passed into 'obsolescence'. Anastasia Salter and John Murray's *Flash: Building the Interactive Web* provides a critical precursor to our discussion, with the authors describing how the multimedia platform continues to persist despite reports of its death, while Nathan Alice's *I Am Error* (2015) incorporates discussions of fan practices that persist beyond the Nintendo Entertainment System's shelf life, including Speed Running[5] and homebrew game development.

By incorporating brief discussions of fan practice, Platform Studies alludes to active audience activity; however, these analyses often privilege commodity forms. In contrast, the Dreamcast's post-commodity life began after it disappeared from stores, and fans became the primary actors inscribing new meanings to the platform. An analysis of the Dreamcast, as a result, cannot be limited to a discussion of officially sanctioned works, due to enthusiasts who continue to produce and distribute new

Dreamcast games. Fortunately, Fan Studies provides a framework for conceptualising such practices, and how they challenge a commercial understanding of platform success and failure.

In "The Popular Economy" (2008), John Fiske examines the variances between media producers and their audiences by differentiating between cultural and financial economies (565). While both work simultaneously, "meanings do not circulate in the cultural economy in the same way that wealth does in the financial" (567). "The Cultural Economy of Fandom" expands on this point, investigating multiple ways in which fans gain cultural capital, including the sharing of knowledge, the appropriation of practices used to create new works, and the archiving of previously discarded material. Fans create cultural capital through the aforementioned activities, which ascribe new meanings to commodities. But in spite of this co-constitutive relationship, the mainstream media often marginalizes fan practices by criticizing aberrant consumer behavior and reinforcing corporate attempts to control intellectual property (Jenkins 2006a: 40).

Keeping with fan stereotypes, Platform Studies tends to privilege industrial histories that implicitly favour commodity-associative meanings, an approach that neatly corresponds with the perceived evolution of videogame design. In *Best Before: Videogames, Supersession and Obsolescence* (2013) James Newman describes how the rapid introduction of new gaming commodities works by manufacturing obsolescence, which implies that older games are obsolete and culturally devoid of worth (3). Platform Studies can avoid this pitfall by incorporating Fan Studies, which highlights how a console's cultural significance changes due to the careful stewardship of fans.

In "*Star Trek* Rerun, Reread, Rewritten: Fan Writing as Textual Poaching", Henry Jenkins describes how fan meaning making practices involve carefully negotiated acts of appropriation, where a work is rewritten "to make it a better producer of meanings" (472). While such practices have flourished for decades, under the radar of most media production institutions, "the Web has pushed that hidden layer of cultural activity into the foreground" (Jenkins 2006b: 137). Enabled by information networks, fan communities grew into larger participatory frameworks dedicated to distributing their own objects of cultural production. Through websites, forums, and wikis, Dreamcast enthusiasts are following this pattern and conducting an ongoing study of Sega's discontinued platform, a process which began after the console was successfully cracked.

A Brief History of Dreamcast Piracy

In the case of the Dreamcast's lifespan, the technical affordances commonly associated with the platform's commercial failure take on different meanings in a post-commodity context. The inclusion of a drive

that could not play commercial DVDs certainly contributed to the platform's commercial failure; however, the exploitation of that very drive also created a thriving creative machine. What follows is an account of Dreamcast piracy, and where possible, the history of these practices. Our discussion primarily focusses on the BBA and the GD-ROM drive: two devices used to pirate Dreamcast software and play pirated games.

As the Sega Dreamcast was disappearing from the retail market, hackers were busy devising alternative means of copying and distributing its software. Although the GD-ROM drive was capable of reading traditional CD-ROM media, conventional home computers could not read GD-ROM discs, so hackers had to develop an innovative method of transferring the data. Luckily, the Internet BBA had an Ethernet connection that allowed for networking with a PC, a process that darcagn (2007), founding of the website Dumpcast, helped expedite by providing step by step instructions for new users seeking to transfer GD-ROM data. Key to this process was a software package called http-d-ack: an application that can read any disc in the platform's drive, provided that the Dreamcast is connected to a PC via a router on a home network. Such a feat is accomplished by directly accessing the console's IP address using a conventional Internet browser, which facilitates the reading and downloading of GD-ROM files.

Because of the larger capacity of GD-ROM discs, Dreamcast dumps were unable to fit onto a conventional blank CD, so audio and video files first needed to be "compressed, cut out and/or downsampled" (Racketboy 2005). Racketboy's account of this process highlights the expertise needed to pirate a particular game, which includes intimate knowledge of the file structure stored on the Dreamcast disc. Cracking a game not only involves the finding of files that could potentially be removed, but also the ability to manipulate the software's overall functionality. For most users, according to Racketboy, the task is well beyond the level of technical skill required, and as such they are "better off leaving this process to the few groups that have experience with the subject" (Ibid.). As a result, expert hackers, dumpers and rippers initially produced the bulk of bootlegged games, eventually secretly re-distributing the entire Dreamcast library. Such groups also created the formats needed to play compressed titles, without the specific aid of hardware modifications.

This practice of ripping, removing and/or downsampling files marks the primary point of entry for remix practices on the Dreamcast. With different hacker groups creating multiple releases of the same game, these would often differ greatly, depending on the media omitted. While some would preserve cut scenes in favour of narrative continuity, often eschewing in game music and sound effects, other groups would adopt the opposite technique: removing the cut scenes and preserving media related to the gameplay experience. Ripping becomes a nascent form of

remix practice, in this regard, borne out of the specific technical limitations of pirating Dreamcast games and pragmatic approaches to working within the console's particular constraints.

Utopia and Kalisto

In the summer of 2001, the hacking collective Utopia announced the initial cracking of the Dreamcast's copy protection (Smith 2000) and the creation of *Dreamcast Boot CD V1.1*, which gave users the ability to download and play compressed Dreamcast games. Through their released NFO[6] file, the group also became the catalyst for an "active ripping community" (Xiaopang 2008) by encouraging others to build upon their knowledge. Dreamcast piracy was subsequently embraced by a particular subset of fans who possessed the knowledge necessary to get games to work. Players initially needed a copy of Utopia's boot disc, which had to be inserted before a pirated game disc could be played. Further developments would have to be made before the community could grow beyond a small number of dedicated experts.

Shortly after the release of *Dreamcast Boot CD V1.1*, the hacker collective known as Kalisto successfully integrated the self-booting protocols onto a hacked game disc. Their first complete cracked title, *Evolution: The World of the Sacred Device*, followed only a month after Utopia's release. In the body of their NFO file, Kalisto begins by thanking the Utopia team for work that "was truly impressive!" (Kalisto 2001). Such recognition is worth noting because in ripping scenes there is a general sense of community, where new collectives skilfully build upon the work of previous hacking groups, constituting what Coleman and Dyer-Witheford (2007) highlight as a "digital commons" (934) of freely shared information, rather than a site of black-market activities. With successive releases, expert consortia disseminated a wide range of pirated games using decentralised file sharing protocols. Non-experts could then connect to these networks and download the playable .cdi files, before burning them with a special utility called DiscJuggler.

After the release of *Boot CD V1.1*, Sega insisted that it would "vigorously pursue and prosecute any website that distributes Dreamcast games illegally" (Smith 2000). However, Dreamcast pirates were not using websites as the primary means of sharing files, preferring to circulate games through decentralised means, such as Internet Relay Chat and peer-to-peer file-sharing networks. Once Sega ceased supporting the console, legal action became less of a threat, so hackers began sharing files openly. Websites such as Dreamcast Junkyard, Planet Dreamcast, and DCemu (short for Dreamcast Emulation) became popular hubs for sharing games and information, and larger emulation websites, such as the IsoZone, also came on board and created databases of pirated .cdi files. To date, many websites continue to operate, providing easy access

to a wide assortment of games, including new creations produced by dedicated Dreamcast fans.

Like many fans before them, Dreamcast enthusiasts began modifying and creating games to satisfy unfulfilled desires and pleasures. Instead of coding new projects from scratch, some decided to remix existing titles by changing backgrounds, characters and music. Amongst notable contributors, Dutch homebrew collective Senile Team produced a sequel to *Streets of Rage* (Sega 1991), and also released a customised game engine[7] allowing others to build upon their work. For these reasons, Dreamcast homebrew development is unique, but not entirely new, as it exists within a longer legacy of fan activities built upon the practice of textual poaching (Jenkins 1988).

Remix Practices and the Beats of Rage Game Engine

Released in 1991, Sega's *Streets of Rage* is a popular two-dimensional side-scrolling "beat-em-up", similar to Capcom's *Final Fight* (1989). Originally titled *Bare Knuckles* in its Japanese version, *Streets of Rage* combines the aesthetics of anime and manga with 16-bit, two-dimensional (2D) animation techniques, a common style found in many 2D fighting games. In the 1990s, developers such as Data East, Midway, SNK, Capcom and Konami released a plethora of similar titles, specifically in terms of aesthetics and core game mechanics. Typically, a game in this genre has players controlling a character, moving horizontally from left to right, fighting a myriad of generic enemy characters. Each level sees an escalation of difficulty via increasing numbers of adversaries, before ending with a uniquely challenging enemy, commonly referred to as "the boss".

Because of the franchise's popularity, fans were eagerly anticipating a *Streets of Rage* Dreamcast version; however, Sega became more focussed on producing three-dimensional games. Once support for the console was discontinued, hopes for a sequel were fading, prompting Dutch homebrew development collective Senile Team to create *Beats of Rage* (2002). In an interview with Sega Addicts, Roel and Jeroen van Mastbergen discuss the origins of the mod and its growth into a customizable game engine:

> Nobody is making a good 2D beat 'em up anymore, and we can't wait until the end of time for 'Streets of Rage 4', so why don't we make a beat 'em up?" So we did! We called the game *Beats of Rage*, as a tribute to *Streets of Rage*, and we borrowed character sprites from the King of Fighters series.
>
> (Westgarth 2012)

The Van Mastbergens' comment echoes a recurring theme in fan culture, where an active audience assumes stewardship of an abandoned franchise

and produces new content in the absence of official releases. While the original motivation for creating *Beats of Rage* was the absence of a commercial sequel, its use grew well beyond its original intent, particularly when fans began reusing the engine to create their own fighting games. The *Beats of Rage* engine began growing in popularity near the end of 2003, according to Jeroen van Mastbergen, when Neil Corlett released a ported version for the Dreamcast. In the hands of Dreamcast fans, *Beats of Rage* creations became a regular occurrence, seeing more than 100 games released in the past 10 years. The engine gave fans an opportunity to create the fighting games they had always wanted to play, specifically by replicating the underlying file structure and mechanics of its predecessor. Like DJs remixing tracks, fans remixed *Streets of Rage* into a plethora of unique creations. Those lacking coding experience, could simply learn to swap files, adding new characters, music, and backgrounds.

Following a relatively simple control schema, *Beats of Rage* avatars are generally limited to four possible actions: jumping, attacking, grappling, and performing a special attack. Each is cued by pressing a specific button, except for grapples, which occur automatically when a player is near an enemy. While contemporary fighting games are more complicated, the mechanics provided Senile Team with a simple framework for building the *Beats of Rage* engine. Fans simply take the basic file structure and insert new audiovisual assets, as the control scheme is already in place. Among notable mods, seeing more than 10,000 downloads (*ISOzone*), are games borrowing from popular commercial works, including *Beats of Rage: Kill Bill Vol.1*, *Beats of Rage: Crisis Evil 1 & 2*, and *X-Men: Beats of Rage*.

Figure 5.1 *Beats of Rage* (2006) screenshot. Roel and Jeroen van Mastbergen.

JaMbo87's *Beats of Rage: Kill Bill, Vol. 1* (2007), draws upon the "House of the Blue Leaves" sequence from Quentin Tarantino's popular film. Playing as the Bride, players walk past background art mimicking the environment from the scene complete with adversaries taken from the film, including the Crazy 88, GoGo Yabari and O-ren Ishi-i. Having never seen a *Kill Bill* videogame, JaMbo87 created an exquisite homage to Tarantino's work, going as far as integrating the music and sound effects directly from the soundtrack. Additionally, the game continues in the aesthetic spirit of *Streets of Rage*, rendering the scene and characters in 16-bit anime-inspired style. Taken as a whole, *Beats of Rage: Kill Bill, Vol. 1* (2007), is an impressive aesthetic feat, appearing as polished as any commercial title released in the genre.

NeverGoingBack's *Crisis Evil 1 & 2* re-imagines the popular survival horror hit *Resident Evil* (1996) as a side-scrolling fighter. Originally released for Sony's PlayStation One, and an early entry in the survival-horror genre, *Resident Evil* has players navigating through mazelike three-dimensional environments fighting zombies, solving puzzles, collecting special items and managing limited resources. *Crisis Evil 1 & 2* reimagines the *Resident Evil* franchise, placing it within the arcade action genre, eschewing survival-horror mechanics and replacing the slow pace and dark foreboding atmosphere with intense, non-stop battles. Despite these radical changes, the game remains true to *Resident Evil*'s story events, paying homage to the original franchise; however, fans encounter the familiar narrative in a different manner. Like a classic detective novel, *Resident Evil* limits the player's perspective to the character being controlled, so one can uncover clues and solve the mystery gradually. Embedded within *Crisis Evil 1 & 2* is the assumption that players already know how the story unfolds within the franchise, so it is presented explicitly at the outset of the game.

Figure 5.2 Crisis Evil 2 (2008) screenshot. Game by Nevergoingback.

Crisis Evil 1 & 2 follows the audiovisual aesthetics of the original *Streets of Rage* game, rendering its environment in a 16-bit anime/manga style. Conversely, *Resident Evil* is rendered three dimensionally using a blockier polygon aesthetic, due in part to the PlayStation One's hardware. Additionally, the franchise's moody instrumental music is skillfully remixed, adding drum beats and an accelerated tempo to match the increased speed of play. Like other fan created projects, *Crisis Evil 1 & 2* pays homage to the franchise that inspired it. However, it also patiently reworks *Resident Evil*'s narrative and iconography, creating a new hybrid form which bears little aesthetic and tonal resemblance when compared with the original.

Beats of Rage: Kill Bill, Vol. 1 (2007), and *Crisis Evil 1 & 2* pay homage to other media, re-imagining the franchises that inspired them using a 16-bit aesthetic. VicViper and Kungpow's *X-Men: Beats of Rage* differs slightly, through remixing the elements of several commercially released arcade games, with other familiar characters from the comic books. In 1992, Konami released *X-Men,* a 2D side-scrolling fighter based on the popular Marvel Comic series. In the same year, rival game publisher Capcom released *X-Men: Children of the Atom*, a 2D arena-style[8] fighting game, similar in tone and gameplay to the *Street Fighter* franchise. Konami's *X-Men* existed only in arcades until the company released a home console remake in 2010. Five years after its arcade debut, Capcom's *X-Men: Children of the Atom* was also ported to various home gaming platforms.

Released in 2007, VicViper and Kungpow's *X-Men: Beats of Rage* remixes both titles into a new side scrolling 2D fighter. As a fan creation, the mod incorporates five of the original six characters from Konami's *X-Men* game (Colossus, Storm, Wolverine, Nightcrawler and Cyclops) and adds several characters that were only playable in *X-Men: Children of the Atom* (Psylocke, Iceman, Jean Grey, Rogue and Gambit). In place of generic enemies, common in most *Beats of Rage* mods, the creators incorporated minor characters from the original comic book franchise, thus capturing the fan spirit of improving upon the creations that inspired the work. Players navigating through each level will encounter familiar adversaries, assuming they were fans of the X-Men comics. Such adjustments add a layer of richness to the overall playing experience, with franchise icons spawning in the place of generic enemies. *X-Men: Beats of Rage* is, subsequently, distinguished by an elevated level of craft not seen in the majority of fan creations.

The production of a *Beats of Rage* game can involve clever artistic and significant technical knowledge, including audio editing, manipulation of the *Beats of Rage* engine, and the ability to create new 16-bit graphics. Despite these barriers, fans have developed multiple ways of simplifying the process, so users with limited technical experience can create new games. On the wiki for the OpenBOR engine, a manual has been assembled to guide fans through the creation of their first project.

When designing the engine, Senile Team also created a user-friendly file structure that is surprisingly easy to navigate. Fans simply place their own files in the appropriate folders (Background, Characters, Levels, Music, Scenes, Sounds and Sprites) and rename them accordingly. As a result, no coding is needed to create a new Dreamcast game.

Integral to the aforementioned process is the technical knowledge needed to generate new audiovisual assets. All characters sprites within a *Beats of Rage* mod uses the animated GIF format, requiring fans to create walking, jumping and fighting images for the engine to animate. Some users do not possess these skills, yet many have discovered a technical workaround by importing visual assets shared from other modding communities. A popular PC fan made a 2D fighting game engine, known as MUGEN, which also uses the animated GIF format, so Dreamcast fans often use MUGEN animations when working with *Beats of Rage*. By visiting popular MUGEN sites, such as mugen.the-chronicles.org, new users can access a range of art assets, including characters from popular television, gaming and comic book franchises.

Another popular means of remixing visual assets is the importing of background art from other fighting games. Several levels in *X-Men: Beats of Rage* incorporate images derived from Konami's *Teenage Mutant Ninja Turtles: Turtles in Time* (1992). Although it is unclear how VicViper and Kungpow incorporated the backgrounds, it could have been accomplished in many ways. Homebrew production, in this regard, illustrates the ingenuity possessed by Dreamcast fans, particularly those who lack the technical skills needed to program a game and the artistic ability required to produce new graphics. As in other media remix cultures, *Beats of Rage* fans incorporate a wide range of audiovisual assets from a variety of discovered sources.

The greatest technical challenge involved in the creation of a *Beats of Rage* game lies in programming the movement of additional characters and enemies. Fortunately, the engine has simplified the task by creating an editable default text document that is easy to modify. Using the *Beats of Rage* wiki, fans can quickly learn to create the underlying mechanics controlling character movement, in addition to adjusting collision detection, spawning cycles, and avatar health. Once programming is completed through the addition and alteration of default settings, Senile Team's automated toolset can also create a .cdi file that fits onto a conventional CD-ROM. No other steps are needed after downloading and burning; the game will immediately play on any Dreamcast.

Conclusion (Beyond *Beats of Rage*)

In an industrial economy, the Dreamcast is nothing more than a failed commodity, but in a cultural economy it is a thriving creative success, showcasing how fans inscribe new meanings to the post-commodity

lives of gaming platforms. As the catalyst for hundreds of fan-produced games, the *Beats of Rage* engine has become popular in its own right, operating as a site for collective fan production and consumption. Such a vibrant culture directly results from the legacy of Dreamcast pirates, who built the tools, formats and distribution networks which continue to facilitate new generations of fan production. Activities that began as a means of copying and distributing illegally pirated games shared the technical specificities of Sega's discontinued platform and spawned a creative community of dedicated practitioners, who continue to expand upon the existing technology manufactured for the console.

As the distance between the Dreamcast's commercial life and post-commodity status continues to grow, its unique peripherals are increasingly difficult to locate. The platform's BBA is the only traditional means of transferring game data from the console, and it has become increasingly scarce in collector's markets, prompting enterprising fan / hackers to create their own homemade versions (Racketboy.com, 2010). Others are developing alternative ways to load Dreamcast games without using CD-ROMs.

Recent developments include the Dreamcast SD (Secure Digital) hard drive, which is a modified SD card reader that plugs directly into the BBA and allows fan created games to be stored and loaded. This new piece of hardware has changed how fans disseminate and experience Dreamcast games, as they are no longer bound by the storage limitations of CD-ROM media. Now fans can play "pure-rips" of discontinued Dreamcast games, rather than the modified versions that were previously available. Appropriately, contemporary Dreamcast pirates are now revisiting their practices and archiving games in their entirety, giving other fans access to the console's full catalogue.

In addition to the aforementioned hardware modifications, the Dreamcast continues to be a site of technological experimentation. Emergent projects, including USB and external hard drive modifications (Cauterize 2014), have also been created, which not only deepen our technocultural understanding of the console, but also alter it significantly. Given these examples, one can usefully compare the methods of Platform Studies to other methods of knowledge production used similarly by fans. As Hills (2002) notes, there is an academic tendency to distinguish good rational scholarship from the abhorrently cultish activities of fans, creating a situation where the contributions of fan-scholars are rarely acknowledged (3–4). Are Dreamcast fans not scholars in a Platform Studies sense, investigating how a console supports and constrains creativity? We insist that they are, and that current approaches to game history can give greater respect and attention to the activities of fans, who continue to infuse abandoned technologies with new cultural meanings.

Instead of being consumer objects situated solely on a timeline of industrial development, platforms spawn thriving post-consumer cultures,

which extend and transform a console's historical significance well beyond its commercial lifespan. In this case study, we have examined a mere portion of these activities by focussing on a platform-centric mode of collective knowledge production – one which clearly disrupts the conventional logics embedded within historical discussions of digital platforms. The Dreamcast is not a singular example; our theoretical lens can also be applied to other cases, such as the thriving creative communities surrounding Sony's PlayStation Portable or the Nintendo Gameboy. Gaming culture is filled with thriving post-consumer communities that can transform a platform's historic significance and build bridges between epistemologies by uniting scholarly and vernacular modes of knowledge production.

Notes

1 Homebrew is a term referring to software created outside of a commercial production context that is usually designed to run on proprietary hardware while eschewing copyright protections.
2 The Broad Band Adapter was made available as an added peripheral that increased the speed of the Dreamcast's Internet connection.
3 Firmware is a physical electronic component with built-in software instructions telling electronic devices how to operate.
4 Members of the DemoScene were among the most advanced of Amiga users, relying on their technical expertise to push the systems graphic and audio capabilities. Born out of previous subcultures centred on the Commodore 64, the DemoScene's "roots lie in the 'cracking' and illegal trading of commercial software" (Maher 2012: 181) for the purposes of creating "Demo" videos.
5 Speed Running is a process where fans compete to finish a game as quickly as possible.
6 NFO is short for info, as in the accompanied files containing information about pirated games.
7 The PlayStation Portable's post-commodity culture revolves around sites like *PSP-Hacks* (http://www.dashhacks.com/psp.htm). In addition, the Nintendo Gameboy has a vibrant chipmusic and homebrew development scenes (Padzierny 2013).
8 An arena-style fighter differs from its side scrolling counterpart by pitting two fighters against each other in a match scored by rounds.

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Section II

Fan Contributions to Game History

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6 *EVE Online*'s War Correspondents
Player Journalism as History

Nick Webber

Launched in 2003, *EVE Online* is a persistent, Massively Multiplayer Online Game (MMOG), described by its developers as the world's largest living work of science fiction (CCP Seagull 2014). The game has more than 400,000 subscribed accounts, and the vast majority of players play together on a single server[1]. The science fiction nature of the game results in an environment characterised by conceptions of the future, but this space is also pervaded by a sense of a past, manifest in the fictional backstory of the game – its 'lore' – and in more than a decade of player activity and its recollection. Player engagement with *EVE* as history is widespread (Webber 2016), with illustrative examples found: in the *True Stories* repository, created to celebrate *EVE*'s 10th anniversary; in the breadth of contributions to the *EVElopedia* (the official game Wiki); and in an extensive variety of blogs, YouTube channels, podcasts and other social media which report on and analyse various aspects of the game and provide player-produced stories couched in *EVE*'s lore.

Notable amongst these media are news sites which operate in a fashion clearly intended to be journalistic: *EVENews24* (*EN24*), *TheMittani.com* (*TMC*) and *Crossing Zebras* (*CZ*). All three sites self-consciously reproduce tropes from established media elsewhere, offering news, features, analysis, etc., and carrying appropriate descriptions: 'Your Daily source of EVE Online News!' (*EN24*); 'Eve Online & Gaming News Site' (*TMC*); 'EVE Online articles, videos, news' (*CZ*). They draw on the broad community of writers responsible for many of the most popular *EVE* blogs, and articles include battle reports, political examinations of game actions, and opinion pieces, alongside more prosaic guidance about styles of play. These sites act not only as a record of events in and around the *EVE* universe, therefore, but as engaged community news services which attend in real time to those things the community is likely to consider important. Of course, other sites exist which replicate something of this mode and produce some similar material, although they do not seek to present themselves explicitly as sites of journalism, sites of *news*, in quite the same manner[2]. Thus, much as with real-world news production, these activities sit within a media ecosystem which contributes to and enhances the experience of *EVE Online*. And importantly

for our considerations here, in capturing events as they take place and in maintaining that record across time, these news sites contribute to recording *EVE*'s history in the making.

The role of journalism in history has long been noted. John Tosh indicates that the press (and by extension, written journalism) is the most important, published primary source for the historian (2015, 78), although historians have traditionally looked down on it, and downplayed it in histories of, for example, modern Britain (Bingham 2012: 311). Scholars have recently made significant efforts to more clearly understand journalism's role both in relation to history (e.g. Conboy 2014) and in memory work (Zelizer & Tenenboim-Weinblatt 2014). Martin Conboy has remarked that 'historians' increasing preoccupation with language, discourse and identity has encouraged them to draw increasingly upon journalism texts' (2014: 2), while Horst Pöttker has noted the converse: the growing importance of history to journalistic work (2014). A historical consciousness is common to both; as Paula Hamilton has observed, 'some scholars have written about the struggle between journalists and historians to tell stories about the past in their columns' (Hamilton 2003: 137–138).

There has also been a tradition of transition from journalist to historian, with scholars such as Peter Hennessy emerging from a journalistic background. And perhaps significantly, Andrew Groen, author of the forthcoming book *A History of the Great Empires of EVE Online*, was formerly a journalist for *Wired*. The existence of 'journalistic' activity in and around *EVE Online* thus raises a number of questions, and while these are initially perhaps for the historian, by extension they are also of interest to the culturalist. In the light of analyses such as those mentioned, what is the historical work done by the journalism of *EVE Online*? What role do these sites, these activities of record, play? And assuming this *is* history, what kind of history might it be?

This chapter explores these questions and attempts to understand the relationship, in terms of *EVE Online*, between journalism, history and fandom. It questions the nature of the history that is produced and the extent to which we can consider this as fandom as opposed to as gameplay: does this writing constitute part of the game, or a reappropriative or extending act? How does this writing function, if at all, as historical discourse, or as public history? And what exactly did EVE's creative director mean when he referred to 'the history of *our* Universe' (Ólafsson 2013, my emphasis)?

The Historical Work of EVE Journalism

Journalism is often referred to as a 'first (rough) draft of history', a position which rests upon its response to society, and its existence within an ongoing set of discourses about the society to which it responds.

Inherently, then, journalism's role is conditioned by its context; journalism is not, in and of itself, history or memory, but it is part of a process of history and of memory. Traditionally (historically) that process has taken place not only with regard to society 'in general' but within a specific community, and it is this activity which lies at the heart of Benedict Anderson's thesis (1983) considering the role of the media in the formation of national consciousness – a sense of identity.

Within its community, in historical terms, journalism serves two roles: as the 'primary recorder of a shared past' (Zelizer & Tenenboim-Weinblatt 2014: 2), it draws the community together around common experiences, but it also situates these experiences within a longer term understanding of that past, as it 'regularly and systematically looks backward in reporting about the present' (Zelizer 2014: 33). Jeffrey Olick has suggested that journalism is 'temporary by design' (2014: 23); but this reflects only upon journalism the product, the individual news piece, rather than journalism as an ongoing activity. The more substantial contribution of journalism to the process of history is not only to offer a singular draft of the record of one event, but a draft of a framework of related events within which that event should, might or could be understood.

We can see this taking place through reiteration, through interrelation, and through a sense of historical position: ten years since, perhaps, or three weeks after. As Michael Schudson has indicated, 'stories that matter are stories that persist and take different turns over days or weeks or longer' (1986: 89). He illustrates this through the metaphor of ripples on water: the splash of the initial news, and the subsequent effect of important events (on both the past and the future) as they propagate outwards (1986: 88–91). Significant moments of reiteration, such as anniversaries, allow for the situation of events in history (see Robinson, Knisely & Schwartz 2014: 432), and the interrelationship of events serves to establish a sense of continuity, particularly through historical references.

> For the journalist, historical references serve many useful functions in the news story, not just by augmenting the story with context, but also by adding new pieces of evidence, revising a once-agreed upon past, marking a commemoration, and giving the story a narrative context.
>
> (Winfield, Friedman, & Trisnadi 2002: 290)

Through these processes, then, journalism works to (help to) transform news *into* history. These are reminiscent of the processes of memory suggested by the ideas of Frederic Bartlett and Maurice Halbwachs (usefully explored in Garde-Hansen, Hoskins & Reading 2009: 2). Memory, too, depends on a revisiting of the past, and both memory texts and journalistic stories depend upon repetition and (intertextual) comparison to make meaning (Kitch 2006: 96; Winfield et al. 2002: 290–291). Yet memory's

processes of recall also act on the past to *change* it; losing detail, as Pierre Nora observes, from generation to generation (1992/1996: 530). The process of history, conversely, is to *preserve* the past (or, at least, *a* past), and to cement it into place through links to other elements of preserved past. In reiterating, interrelating and positioning events historically, therefore, journalism contributes to this activity, acting to ensure that accounts of past events remain the same.

In terms of *EVE Online*, these processes can be explored through consideration of events which we might think of as the most significant to take place in New Eden: those which receive coverage by the mainstream media. While reports about *EVE Online* beyond the gaming community are occasional and sporadic, they do occur across a variety of major news outlets. What proves interesting is the ways in which the historical work done by mainstream media in respect of *EVE*, and that done by games journalism in general, and *EVE* journalism in particular, differs in material ways. And while we might expect these news providers to operate in a hierarchy of increasing focus and detail as they become closer to the source of the story – increasingly engaged, perhaps, or more detailed – the historicising process of journalism seems subject to a similar structure.

The Battle (or Bloodbath) of B-R5RB (B-R for short)[3], which took place on 27 January 2014, is an event that provides an illustration of these distinctions. Resulting either from a bug or an oversight (widely reported as an 'unpaid bill'), this battle became far larger and more serious than any of its participants expected, apparently prompting the Associated Press to send a 'war correspondent' (Good 2014), whose report (Lang 2014) was picked up and disseminated by outlets such as the BBC and USA Today. The message conveyed by these media was simple: this battle had resulted in around US$300,000 worth of damage, in terms of ships, equipment and structures destroyed, and it was large: 'the biggest battle of its kind in the game's 10-year history' (BBC 2014); 'the bloodiest battle' and 'the most destructive and expensive battle in the 10-year history of "EVE Online"' (USA Today 2014).

The mainstream outlets, then, told a story of massive financial loss, and a 'biggest ever' battle, clearly an attempt to establish these events as comprehensible to mainstream news audiences (and certainly the coverage helped to establish the significance of the battle as event[4]). These somewhat cursory reports of '*EVE* news' were significantly extended by technology and gaming sites, which, while including the same core messages, provided greater engagement and analysis. In a reference to the ultimately representative nature of such events, for example, Bo Moore of *Wired* offered a more humanising characterisation of the battle as one in which 'more than 20 million soldiers were killed and more than 600 warships… destroyed in a battle that raged for 22 hours', making this battle 'the largest and bloodiest in the history of warfare'

(Moore 2014). Moore also worked to explain the battle in a broader context, providing details about the war of which it was part and the ships involved. Elsewhere, *Polygon*'s Jenna Pitcher provided an interim report as the battle took place, including an interview with The Mittani, one of the leaders of the alliances involved, followed by a subsequent piece in which she engaged with further detail, including the recognition that this was only *EVE*'s biggest ever battle by certain measures (Pitcher 2014a, 2014b).

These positions represent a distinct contrast between treatments of the history within which this event might be contextualised. Mainstream news offered a narrative built in part upon a historical claim – this battle was the biggest *ever to have occurred* in *EVE Online* – but provided no further information to help the reader interpret what this claim signified in terms of the game itself. What, for example, were battles like, how many were there, and what, in essence, did this great battle mean? The gaming news outlets, conversely, gave additional, explanatory detail which made the historic claim make sense. Moore's unspoken 'if it were real' fits this event into a lineage of warfare in ready circulation in the media at large; his discussion of the Halloween War situates it in a discourse of an ongoing conflict, as opposed to leaving it as an isolated event of remark. Pitcher focussed closely on the history of the *EVE* community, calling previous conflicts to our attention, the Battles of Asakai and 6VDT-H, which competed for scale of participation with B-R, if not for destruction. Notably, also, Pitcher expressed a sense of a journalistic narrative running alongside *EVE*'s narrative: she linked back to *Polygon*'s own coverage of Asakai, helping us to appreciate the flow of events but also to frame them in terms of history, of a narrative about the past. This distinction between levels of historical work is both stark and important. Indeed, it is underlined by the *capacity* of mainstream news outlets to undertake these engagements but their omission to do so: BBC News, for example, also covered 6VDT-H when it occurred (BBC 2013), yet offered its readers no connection between the two events.

Unsurprisingly, *EVE*'s news providers offered even more comprehensive coverage of B-R, including real-time updates and links to live feeds about the battle (e.g. Bobmon 2014a; Mittani 2014), end of battle situation reports (JustSharkbait 2014), extensive post-battle analysis (Aras 2014), reflections (Pellion 2014) and debrief interviews with major participants (Phoena 2014a). The usual financial and scale allusions were made, along with references to former battles and a blow-by-blow sense of escalation. This coverage and exploration of B-R was principally distinct, however, in acting historically in a way that others did not. Not only did *EVE*'s news sources report on B-R, but in a manner typical of journalism after a major event, they discussed it, they analysed it, and they kept on talking about it, exploring 'not just what happened, but whether what happened meant something and, if so, what'

(Winfield et al. 2002: 290). The battle took place in January 2014, but articles reflecting on the battle and its impact were still being posted months later: in June (Alyxportur 2014), in August (Kumitomo 2014) and onward thereafter; in June 2015 (Blackfist 2015).

Here, then, journalism in and around *EVE* acted to transform the news of the battle into history in a way distinct from the historical work performed by mainstream (and broader gaming) media. This is not, however, an isolated instance, and it is possible to see an ongoing historical discourse at work through *EVE*'s attendant journalism; I would argue, in fact, that *EVE*'s journalism is *self-consciously* historical. Not only does this writing engage with the three modes of historical production that I mention previously (reiteration, interrelation and position), it does so in a way which signals an awareness that this is a deliberate act; that history, here, is important in some way that makes referring to it worthwhile.

This historical awareness is signalled explicitly not only through columns and articles which recognise particular events or occasions as historic but also through those which discuss and present histories of aspects of *EVE* and its community. These pieces are often written a substantial period after the events they describe, though perhaps not in normal terms long enough to satisfy historians' expectations of critical distance. However, it is in the nature of games, as entertainment, for timeframes to be tremendously compressed: at the time of writing, *EVE* has run for only 12 years, yet in that time the political geography has changed dramatically and repeatedly as empires have risen and fallen and players have joined and left. Thus a week in *EVE* may in effect be much longer than the apocryphal week in politics, and possibly as a consequence, many of these journalistic pieces are reflexive in the manner of traditional narrative historical writing, conditioned by an acute awareness of the impact of an event, person or institution on *EVE*'s present. Such pieces include histories of community spaces (such as the now defunct Kugutsumen.com: Keller 2012) and of conflicts such as the Southern War (e.g. Christos 2011), statistical histories – of price data or activity levels (for example, Noizygamer 2014) – and historically grounded analyses of *EVE* politics (e.g. Raimo 2015a). Notable among these are a number of pieces which set out to explain some aspect of game activity, comprehension of which requires a knowledge of *EVE*'s past – articles exploring particular conflicts may link to supplementary pieces which develop the historical background to those conflicts (e.g. Bagehi 2013), or those assessing the impact of new game mechanics may provide significant historical material to underpin the debate (e.g. Matterall 2015).

This explanatory activity underscores an issue common to many games, but especially acute within *EVE Online*: the need for game-specific literacy in order to participate fully in the game and its community

(Steinkuehler 2007). Indeed, this can be highlighted by reference to other articles, in which discussions of matters such as ship fits are almost impenetrable to a non-player (see, for example, FearlessLittleToaster 2015). The historical work of *EVE* journalism thus supports the process of sense-making among *EVE* players; to be successful, players not only need to understand what happens but how it happens and how historical activity has contributed to the production of the conditions of the present. And while this activity is in keeping with normal expectations of journalistic work – the 'explainers' which have become a feature of modern news sites, for example – it also plays a distinct role in the creation of informed, *EVE*-literate players.

In a variety of ways, then, *EVE* journalism takes news from within the game community and situates it within an ongoing discussion, a process which, over time, creates a culturally rich discourse about *EVE*'s past. The journalists of EVE tell and retell all or part of these stories, using them to explore and understand the complexities of the *EVE* community at the same time as they engage and inform that community, and bring it together through those activities.

CCP, Lore and History

Although culturally rich, however, this is still a discourse concerned with the past events of a fictional universe; it is tempting to dismiss it as 'not history' on that basis alone. Yet as I have argued at length elsewhere (Webber 2016), it is legitimate to consider explorations of *EVE*'s past as historical. As a form of society, *EVE* is susceptible to study by historians and bears a credible and complete past of its own which merits such study. And while aspects of *EVE*'s history may be fictional, we should be mindful that histories anyway present a *discourse about the past*, not an objective truth (Jenkins 2003: 31–32).

It remains important, though, to consider the extent to which *EVE* journalism engages with, and makes use of, the fictional setting of New Eden, *EVE*'s gameworld. Significantly, and in a different manner from much of the player-focussed history recorded by *EVE*'s journalists, work focussed on *EVE* lore engages directly with the intellectual property of CCP Games, the developer and publisher of *EVE Online* (for example, Raimo 2015b). Consequently, tensions exist between players and CCP around player-created historical material which engages with *EVE*'s fictional backstory (lore), tensions which result in two tiers of historical record: an authorised, canonical history, curated by CCP, and an unofficial or unauthorised history which is dismissed or deleted (see Webber 2016). Yet it should also be noted that CCP's active production and curation of lore material encourages an environment in which *EVE*'s journalism serves as a form of historical record for this material too. Indeed, history, and in particular the interrelationship of player history and lore,

has been an important aspect of CCP's approach to *EVE* in recent years. The *True Stories* project (CCP Games 2013), for example, initiated as part of the celebration around the game's 10th anniversary, focussed on players' tales of their *EVE* experiences. This ultimately historical material now lies at the heart of CCP's transmedia activity connected with *EVE*; the most popular story was turned into a graphic novel (Way et al. 2014), and further project material is to be used as the basis of a television series (Williams 2013).

In journalistic terms, CCP makes an important contribution through a variety of output, including a number of news channels[5], developer blogs, YouTube videos and, more recently, through *The Scope Galactic News Network*, an in-character video news channel which covers both player activity and lore. According to a 2015 interview with *The Scope*'s creator, CCP senior media producer Ragnar Ágúst Eðvaldsson, the channel was started as a reaction to the mainstream media approaches to B-R5RB described above; as Eðvaldsson himself noted, 'The mainstream media picked up on the highlights, how much real money was lost, etc, but if you were someone who knew nothing about *Eve* you wouldn't really know what was going on' (Maiberg 2015). The implication here is that *The Scope*'s content is aimed at a non-*EVE* audience, but it is more generally informative than that, pushing out information about game changes (such as the introduction of new ships) alongside coverage of lore and player activity.

The material produced by CCP is widely deployed by the player-run news organisations, although the mechanism through which this takes place varies: *EN24*, for example, directly (re)publishes CCP content under the by-line 'Eve Online' (e.g. Eve Online 2014), whereas both *TMC* and *CZ* seem to prefer to offer the content in an analytical frame appropriate to their particular news styles (e.g. Mizhir 2015; Tubrug1 2014). In addition, this engagement with the CCP-originated material drives some portion of the historical discourse at play, such as when the publication of a video about B-R (CCP Games, 2014) almost four months after the battle took place was picked up by *EN24* (Bobmon 2014b), encouraging journalists and their readership both to see this as history (the video was entitled 'Recording History: The Bloodbath of B-R5RB') and also to participate in a process of revisiting these events.

This relationship is not entirely one-way, of course, and CCP output also draws on material produced by players, as in the case of *True Stories*. In journalistic terms, an immediate example is the citation of articles at *The Mittani.com* as 'intel' for the developer blog written about B-R by *EVE* community manager CCP Dolan (2014). This reciprocal exchange of information and ideas is thus both influential and reinforcing, cementing a commonality of purpose through the practice of journalism as a historical process.

Who Are the Journalists?

Kari Andén-Papadopoulos notes that journalism often provides not just the first draft of history but in fact the only draft (2014: 149); and certainly, even though the process through which journalism produces history is dependent upon repeated re-drafting, there is often no drive to create a historical discourse which extends beyond the news itself. Clearly, then, we might look to a distinction between what constitutes journalistic significance (i.e. newsworthiness) and what constitutes historical significance (after Carr, that which causes historians to accord something the status of historical fact; 1964: 12–13). At the core of both journalistic and historical work, however, is a claim to truth, based upon verifiable evidence. Indeed, for some scholars, 'journalism looks a lot like history: it is a professional enterprise, it is public, it values sources and rules of confirmation, and its residues are relatively permanent' (Olick 2014, 23).

This suggests that it is perhaps problematic for conceiving of their work in historical terms that *EVE* journalists are not professionals in this mode. The vast majority of work is done voluntarily, and while there is occasional compensation in ISK (EVE's currency), this is not commonplace (Bobmon 2015a). Yet this does not prevent a public culture within which the three main news providers exhibit self-awareness of their role as journalists, and reflect on the ethical parameters of that role, as a lengthy discussion transcript at *CZ* indicates (Phoena 2014b). And while it is tempting to analogise this to citizen or hyperlocal journalism, the work of *EVE* journalists is perhaps less vulnerable to problems around the credibility of its information (highlighted in terms of crowd-sourced video, for example, by Andén-Papadopoulos 2014: 150). Much of this journalism reports on conflict and on issues of sovereignty, and authoritative community sources such as zKillboard.com exist to verify claims to kills, for example, drawing on *EVE*'s 'CREST' application programming interface to check data provided against that held in the game's own databases. When set alongside the *EVE* community's active and engaged culture of contribution, and its gameplay-driven sensitivity to misinformation, it is clear that certain forms of truth claim can be supported far more readily for *EVE* journalism than would be the case for journalism focussed on other matters.

To further add to their credibility, many of the journalists deployed by these news providers are already established voices in the *EVE* community, authors of popular blogs or *EVE*'s version of significant public figures – some of those who are most active and engaged in the community. This includes several former and current members of, and candidates for, the Council for Stellar Management, an elected group that represents the *EVE* player base in discussion with CCP Games. The participation of these individuals is thus a warrant for the qualities of

the sites for which they write; The Mittani is particularly notable here, both as arguably the best-known *EVE* player but also as someone whose name has in itself become a brand, as *TheMittani.com* indicates (Endie 2012). Equally, while it might be expected that such close associations are likely to represent an affiliation to a specific political view (in support of Goonswarm, for example, in the case of *TMC*), the sites themselves seem happy to present conflicting viewpoints (so, again in terms of *TMC*, the site has recruited writers from Goonswarm's opponents; Endie 2012).

In many cases, then, those who are producing *EVE*'s journalism are participants in significant *EVE* activities, able to add both credibility and an 'I was there' sense of authenticity to their accounts (for more on this with reference to *EVE*'s history, see Carter et al. 2015). Yet one commentator does observe that this presents difficulties in obtaining the perspective often readily available to real-world journalists, as journalists in *EVE* tend to be directly involved in events, making it harder to produce an authoritative account (Bobmon 2015a). In any case, it is evident that a developed knowledge of *EVE* and its community are necessary to these roles. However, although the vast majority of writers are current *EVE* players, recruitment calls (Bobmon 2015b) and author biographies seem to imply this need not always be the case, and *TMC* in particular aims at a broader remit than writing exclusively about *EVE* (Endie 2012).

Fandom, Journalism and *EVE Online*

The potential for commentators not to be players thus raises questions about the relationship between *EVE*'s journalists (*EVE*'s putative historians), the game and its community. What role do these acts of writing play: are they part of *EVE*'s sandbox, do they extend it, or do they take place beyond it? And how might we define fans of *EVE* if they are distinct from *EVE* players? CCP's own approach to *EVE* journalism adds complexity to this picture: these news providers appear as 'Fan Sites' on the official *EVE* community webpage, but are also included alongside a collection of mainstream and gaming news sites in a section labelled 'In the Press'.

A growing literature exists on the notion that videogames are co-created experiences, reflecting on the unpaid work and dedication of those who produce assets such as game walkthroughs (Consalvo 2003: 328–329) and who generate other attendant material and activity through which 'the game is made animate' (Taylor 2006: 133). For scholars such as Mia Consalvo, gamers are, therefore, fans and active audiences (2003: 323). Yet it remains unclear whether or not we might conceive of a distinction between the 'simple' act of playing a game and the position of being a fan. In terms of MMOGs, Constance Steinkuehler has drawn a

distinction between "in-game practices" which take place in "the game's virtual world", and "the fandom that surrounds it" (2007: 303). The lengthy debate about the 'magic circle' notwithstanding (Steinkuehler herself notes the porosity of any boundaries which seek to define the limits of play here), the use of the term 'fandom' to describe the 'other stuff' of the game, the material pertinent to gameplay that exists outside the game client itself, is interesting.

To apply this distinction to *EVE*, however, seems problematic. Although the community refers to the 'metagame' to describe many activities taking place outside the client, metagaming is more generally used to describe theorisation and planning activities, such as theorycrafting (Paul 2011). There is a strong sense that, whatever metagaming might comprise, it is not the game itself. Douglas Wilson (2011) refers to the metagame as the negotiation around the game, noting that it has the potential to 'intrude' upon the game system. Yet, to use The Mittani as an example once again, certain *EVE* players rarely, if ever, log into the game client – all, or almost all, of their play takes place outside 'the game', in chatrooms and forums (Parkin 2015); and research on the practices of *EVE*'s industrialists indicates clearly that 'involvement in EVE does not stop once they log off' (Taylor et al. 2015: 381–382). Thus if we accept that limits on play are porous, for *EVE* we may have to accept that limits on 'game' are porous, too.

Of course, this does not prevent that non-client game activity being read as fandom, although Hanna Wirman cautions us against doing so, noting that it is an over-simplification to see the textual productivity of gamers in this way (Wirman 2009). We might instead see it as a form of immaterial, player labour (see Taylor et al. 2015), part of the work of EVE signified in the conception of the game's realness (Carter et al. 2015). However, further nuance and a clearer sense of what is occurring, is perhaps offered by the work of Renee Barnes, in considering the 'ecology of participation' which takes place in alternative and citizen journalism (2014). Barnes draws our attention to the fan-like behaviours around the participatory audiences for journalism of this kind, some of whom are the active contributors who write for the sites in question or who respond via comments to the issues raised, but the majority of whom are either 'engaged listeners', or distributors of this material. Our understanding of the role of *EVE* journalism as a gameplay activity must, indeed, be predicated not only upon its production but also its reception by and impact upon its audience, and the capacity of that audience to contribute to the production, through writing, commenting, submitting intelligence and leaks, or simply circulating the 'news' through their networks. This is further borne out by the occasional tendency of both authors and readers to describe themselves as fans, either of *EVE* itself or of the news site reporting on it (see, for example, Bobmon 2015b, comments 2043068773 and 2043317731).

Conclusion: History, Fandom and Journalism

EVE journalism, then, is a work of fandom but also of player labour, which acts to report news and, through a process of repetition, interrelation and positioning, to transform that news into the history of *EVE Online*. But what kind of history is it that is created by this process? It is tempting to see this as a form of public history, 'politically self-conscious, community-based [...] open to all and usable in political struggles' (Jordanova 2006: 126); and certainly, it appears participatory and bottom-up, produced by *EVE*'s community, by those whose authenticity and credibility has been established in many cases through presence at the events that they describe. Yet it is generally accepted that contributors to online spaces represent only a fraction of those who read them (Arthur 2006); and, of course, those who read these news sites represent only a fraction again of those who care about or play *EVE*. Voter participation in the *True Stories* project sat at a level of only around 0.5% of active *EVE Online* accounts (Webber 2016), and some *EVE* blogs suggest that a huge swathe of the player population are effective non-participants in the *EVE* community, unaware of the vast productive activity that takes place, and only engaging, via the official forums, when unhappy (e.g. Scientist 2013; MinerBumping.com).

This is not, equally, an official history. I have already alluded to CCP Games' desire to interweave player activities with game lore, and to advance a transmedia agenda drawing on the history of *EVE*, a history which the *True Stories* site refers to as 'the history of our Universe, as told by those that inhabit it' (Ólafsson 2013). We can, however, see in *True Stories* and in other official historical venues such as *EVElopedia*, that the company is very protective of its intellectual property in this area, as we might expect; and as I mentioned previously, there is a sense that player histories are, in fact, devalued by CCP and seen as in some way inferior to game lore (Webber 2016). Located outside the remit of CCP's immediate control, however, the history produced by *EVE*'s journalism is of a different form. Material originated by CCP is published and examined; importantly, though, it does not *have* to be. The historical agenda is thus set not by the developers but by the interests of the players. The widespread focus on player experiences reduces the impact of CCP's lore on the construction of *EVE* history; there is still interest in conflict between the peoples represented in the lore, such as the Amarr and the Minmatar, but far more in that between player organisations like CFC and N3.

We cannot, though, escape that this is not a genuinely public history but rather that of a highly engaged elite. The great battles and political movements which are most regularly recorded are only a small part of the activity which takes place in New Eden, and their stories are generally presented consistently by the same writers, the same voices. That many of these voices are also part of the blogging community, while advancing

their credibility as contributors, reduces the plurality of voices in the historical space. Yet we must also be mindful that the purpose of these sites is not primarily historical but journalistic, and thus bound to some extent by concerns of newsworthiness. Industrial news, for example, may be less regularly reported, but is also less immediately eventful; the specifics of activity in high security space (high-sec) are thus relatively rarely discussed, although economic analysis is commonplace.

The key here would seem to be the issue of the sandbox, a widely used description of *EVE*: the game affords a significant variety of styles of play, and player responses to the game, and the meanings that they make from it, are contextualised by the play approach they take. There are relatively few voices in *EVE*'s journalism, but its audience is also relatively small; its 'community' is not perhaps as broad as we might imagine. The history produced by this journalism, produced for and through its readership, responds to a small, highly interested group – those who actually care about the history of *EVE*. The significant role that this history seems to play in *EVE* literacy is clearly vital within that community, informing as it does their understanding of the events occurring in the game, but as the apparent level of engagement seems to indicate, it is perfectly possible to play the game in ignorance of all of this material, without this interpretative framework. This is not, however, to suggest that players who do so are not emotionally involved in the game – indeed, responses to destruction of their assets, recorded at length on MinerBumping.com and similar sites, demonstrate a high level of investment from these players, just not an investment in the interpretative construction of the game offered by *EVE*'s journalists.

To consider this, then, in terms of fandom, it would seem that *EVE*'s journalists can be more readily interpreted as fans of a particular form of *EVE* play and its attendant community than as fans of *EVE* in a more general sense. To its journalists, *EVE* is a highly politicised and newsworthy space, affording the production of an equally political and complex history. The journalism that they produce is informed and tempered by this fandom; it, and the history it produces, are inherently partial, excluding (however unintentionally) the voices of the majority of *EVE*'s players. Ultimately, then, it would seem that *EVE*'s journalism produces not a fan history of *EVE*, but a history of a particular form of *EVE* fandom.

Notes

1 See Drain 2015 for the details. Estimates suggest that there are between 335,000 and 338,000 live accounts on *EVE*'s main server, Tranquility, with around 73,000 on the Chinese server, Serenity. Many players have multiple subscriptions, so accurate player figures are difficult to estimate.

2 Notably, there are non-English news sites, such as EVENews.ru, which offer similar approaches to the extensive Russian-speaking EVE community, but the language barrier prevents analysis here.

3 Most areas of space in EVE Online are referred to by alphanumeric designators.
4 At least sufficiently to ensure its addition to Wikipedia: https://en.wikipedia.org/wiki/Bloodbath_of_B-R5RB.
5 Including two labelled 'game world news' and 'interstellar correspondents': see http://community.eveonline.com/news/news-channels/.

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7 NES Homebrew and the Margins of the Retro-gaming Industry

John Vanderhoef

In 1983, Atari famously buried millions of game cartridges, including the infamous *E.T.* (Atari 1982), in the Alamogordo, New Mexico, city landfill after they failed to sell (*The New York Times* 1983). In his book, *Game After: A Cultural Study of Video Game Afterlife*, Raiford Guins (2014) chronicles this event to call attention to the lifecycle of videogames, including what he calls their "afterlife", when game technology drops out of formal channels of exchange and finds its way into junk yards, thrift stores, personal collections and cultural institutions like museums. Colloquially, the great Atari burial marked the beginning of the 1980s North American videogame crash and a loss of faith in the industry (Donovan 2010, 108–9). Following the industry crash, Nintendo entered the North American console market in 1985 with its Nintendo Entertainment System (NES). Thanks to strong initial sales in New York, word-of-mouth and games like *Super Mario Bros.* (Nintendo 1986), the NES revitalised a dwindling videogame market. However, after several successful years, Nintendo orchestrated the obsolescence of the NES with the release of the Super NES (SNES) in 1991. Over the next few years, development for NES gradually ceased and market attention shifted to the 16-bit era of console gaming defined by Nintendo's SNES and Sega's Genesis game consoles. In 1995, Nintendo abandoned production on the NES hardware completely. Like the Atari before it, the NES became seemingly fixed in history, abandoned to the ravages of the aftermarket at garage sales and thrift stores, thrown away to fester in landfills, or quarantined to private or institutional collections in archives or museums. However, one group of hobbyist game developers did not want the story to end there.

The practice of homebrew development refers to at-home videogame or software development, often for proprietary platforms. Homebrew development is often associated with illegal activity such as running pirated software or unofficial operating systems on otherwise restricted computing hardware. One particular subsector of homebrew culture is homebrew retro-game development for older and outdated videogame consoles, particularly the Atari VCS (1977–1992) and the NES (1985–1995). Ostensibly what Sterling and Kadry (1995) have called

"dead media", these failed or obsolete platforms and technologies have been abandoned by commercial and popular cultures in favour of newer technologies with increased functionality and fidelity. Retro homebrew games are generally created using development emulators that recreate the technological constraints of older platforms. This is so the games can operate on the original technology when dumped onto physical media like NES circuit boards encased in game cartridges. For NES homebrew development, that means programming using the 6502 assembly language, code designed to operate with 8-bit microprocessors introduced in 1975 and used in various home computer technology including Nintendo's first home console.

This chapter addresses a complex array of historical, social, political, industrial and economic concerns that coalesce around the practice of contemporary NES homebrew game development. Scholars like Melanie Swalwell (2007) and Jaroslav Švelch (2013) have written invaluable histories of homebrew development in 1980s New Zealand and Czechoslovakia, respectively, for platforms like the ZX Spectrum. Meanwhile, Casey O'Donnell (2014) has discussed homebrew development in relation to contemporary gaming platforms. Yet, few scholars have engaged with contemporary homebrew game development for outmoded systems, which raise a different set of questions, including those that deal with obsolescence, residual media, age and value, and nostalgia. Specifically, I foreground the retro-gaming industry that commodifies digital game nostalgia, drawing connections between the formal operations of this industry and its alternative forms exemplified in NES homebrew development. Although this chapter recognises NES and other forms of retro homebrew as existing within the greater economy of the retro-gaming industry, it also proposes that retro homebrew differs considerably from industry interests in that it insists on the continued value of aging technology in the face of rapid innovation, preserves historical development practices, and encourages a model of game development and consumption that indirectly challenges the larger cultural myth of the technological sublime and opposes the consumer electronics industry practice of manufactured obsolescence. Thus, this chapter complements Nathan Altice (2015) in "critiquing the notion of a platform as a stable configuration of hardware and software", and instead illustrates how the NES continues to see "constant revision, mutating to adapt to new cultures, new play practices, new markets, and new genres" (7).

The Retro-gaming Industry

James Newman (2004) has described retro-gaming, the playing of older games through emulation or on original hardware, as one of the significant trends in gaming today. The word "retro" comes from Latin and means backward or backward looking. This fixed attention to what has

passed often assumes the form of nostalgia. From Greek, nostalgia implies a longing to return home, either a real or imagined one. Indeed, Jaakko Suominen (2008) argues that the growth of digital culture, including gaming, has involved a continual return to and recycling of past media cultures, a pattern especially visible in retro-gaming practices. In addition to the individualised, psychological dimension of nostalgia, Suominen emphasises the shared, collective nature of the concept, one that manifests in a group desire to return to a shared past. It is this collective nostalgic desire, argues Suominen, which capitalist enterprises seek to exploit through products and services that harken back to the past, or what Whalen and Taylor (2008) describe as the "cultural commodification of memory through consumable media forms" (6). In gaming, this co-optation of social and cultural memory becomes a marketing strategy for the retro-games industry, a subsector of the larger gaming industry dedicated to revisiting the history of the medium, repackaging it, and re-selling it to consumers, many of whom wish to reconnect with earlier periods in their gaming lives.

The retro-gaming industry, then, effectively exploits peoples' intimate memories of older gaming technology, transforming it into a continual stream of revenue derived from nostalgic consumer products. The most visible form of this practice within the dominant industry can be found in the digital storefronts on all three major consoles where players can download and play classic games on today's hardware through emulation. By "classic games", I mean games from previous console/PC generations that have achieved a certain level of cultural currency, either through sales numbers or critical praise. In fact, Nintendo essentially relies on the classic status of many of its older titles and the nostalgia they inspire as an overall business strategy. The company continues to exploit its library of classic games, characters and franchises to sell its latest consoles and software. Outside of the major platform holders like Sony, Microsoft and Nintendo, third-party publishers have released countless retro game collections, including the series of Namco Museum games and *Midway Arcade Treasures* (Midway 2003). Additionally, various other companies license classic gaming properties to sell a variety of accessories, apparel and electronics to retro-gaming audiences. For instance, AtGames has an entire series of licensed plug-and-play devices modeled after the classic Atari, IntelliVision, ColecoVision and Sega Genesis game consoles. These living room devices are facsimiles of the original console hardware and contain hundreds of built-in games for players to access. Even many commercial indie game developers exploit variations on retro, pixel-based aesthetics, inspired by 8- or 16-bit graphics of the 1980s and early 1990s. Just a few examples of this trend include *Cave Story* (Studio Pixel 2004), *Terraria* (505 Games 2011) and *Papers Please* (3909 2014).

Indeed, one of the major trends in commercial indie game development is a fascination with earlier epochs in gaming history. This reverence can be seen in the design, aesthetics and countless allusions to classic videogames across the spectrum of indie-produced digital titles. In recent years, indie hits like *Super Meat Boy* (Team Meat 2010) and *Shovel Knight* (Yacht Club Games 2014), among dozens of other titles, mimic 8-bit aesthetics and design while also containing an array of allusions to classic NES game titles like *Super Mario Bros.*, *Mega Man* (Capcom 1987) and *Castlevania* (Konami 1986). *Shovel Knight* developer Yacht Club Games, in fact, used the limitations of the NES hardware as a guiding philosophy when developing *Shovel Knight*, only deviating when necessary, such as widescreen displays, parallax scrolling, the elimination of sprite flickering and the addition of colors beyond the NES's 54-color limit (D'Angelo 2014). Commercial indie games adopt a retro aesthetic for multiple reasons, including industrial, technological, economic and political motivations. While indie developers often choose a retro visual design because it is less resource-intensive to produce than photorealistic 3-dimensional graphics (industrial), or because a retro aesthetic represents a deliberate affront to modern blockbuster visuals (aesthetic/political), this choice also suggests that indie developers recognise the robust preexisting market for retro games into which they can tap (economic).

The retro-gaming industry would not exist without an enthusiastic consumer base. According to the Electronic Software Association (ESA), a U.S. industry trade group, the average game player is 35 years old (ESA 2015). This means the average player in 2016 was born slightly before the release of the NES in 1985 and is part of the so-called "Nintendo Generation" of players (Kline, Dyer-Witheford & de Peuter 2003). Additionally, the ESA reports that the age of the most frequent game purchaser is 37 years old. This suggests that the audience most likely to be interested in 8- and 16-bit era games overlaps significantly with the audience most likely to make a gaming purchase. The data collected and distributed by the ESA should be eyed critically, of course, considering the organisation exists to promote the gaming industry as one that caters to all demographics and has a vested interest in promoting an older, more affluent consumer base. However, these statistics suggest a sizable consuming audience familiar with games of the 1980s and 1990s, the period currently in vogue in the retro-gaming industry. It is this audience to which the industry attempts to sell a commercialised form of gaming history by exploiting the nostalgia many of these players have for the games of their childhood.

Matthew Thomas Payne (2008) examines the commodification of retro-gaming nostalgia in his discussion of "Plug it in and Play TV Games" (PNP), like the AtGames products mentioned previously. In his work, Payne contrasts profit-minded PNP games with the more

participatory Multiple Arcade Machine Emulators (MAMEs), computer programs that allow users to emulate classic videogames on their PC. Payne argues the amateur archivists of the MAME community "destabilize the corporate firm's authoritative hold on authoring, distributing, and mediating the classic game experience" by sharing files via peer-to-peer networks over the Internet (56). David Heineman (2014) has framed such contestations as ones taking place between industry-controlled "official" game histories and fan-controlled "vernacular", collective memories. Engaging with the concept of collective memory, Payne borrows James Wertsch's definition as one where "a community's sense of a common past is founded on its shared 'textual resources'" (53). In the case of NES homebrew developers and players, these shared textual resources include the material aspects of NES-era gaming culture, such as the NES system, games and peripherals. Whereas the retro-gaming industry exploits nostalgia for financial gain, the retro-gaming community instead uses vintage games as vehicles to nostalgically explore their own past and form communal bonds with others who share their interests and experiences with earlier gaming technologies. Although MAME users share the same enthusiasm for classic videogames with NES homebrew developers and players, the latter group also supports the production of new titles for the obsolete NES console and invests in the preservation and use of the original, material hardware.

Recognising Payne's dichotomy between the corporate, hierarchical, official retro-gaming industry and the egalitarian, free, unofficial ecologies of exchange exemplified in the MAME community, I propose that the practice of NES homebrew development and distribution falls ambiguously between the two. While NES homebrew represents an attempt to carve out a space divorced from the nostalgia industry's control of classic gaming experiences, many of the most popular NES homebrews are nonetheless sold online as packaged goods through small websites akin to kiosks one might find in a street bazaar. NES homebrew developers therefore arguably trade in the same nostalgic currency as the dominant retro-gaming industry, albeit on a much smaller scale and within what Ramon Lobato (2012) identifies as a "shadow economy", or an informal system of commodity exchange. Like MAME users, NES homebrew developers destabilise the gaming industry's control over classic videogames; however, rather than doing this through the ambiguously legal and free activity of ROM exchange and collection via the Internet, NES homebrew developers create what Andreas Huyssen (2000) calls in the context of film, "original remakes", or new games that share the same format, limitations, feel and mechanics as classic games but rely on novel, rather than repackaged, intellectual property. Instead of subverting established classic gaming canons, NES homebrew developers desire to create continuity with older games and contribute to the canonical NES library.

Capturing the 8-Bit Feel

When official development for some gaming platforms ends, dedicated groups have historically emerged to continue support and development for them, reflecting the unique relationship many videogame fans have to specific gaming hardware. For the purposes of this chapter, I differentiate between homebrew development and modding communities. Therefore, while there are examples of modding communities continuing to support older games, like defunct massively multi-player online role-playing games such as *Ultimate Online* (Electronic Arts 1997) or open world games such as *Grand Theft Auto IV* (Rockstar 2008), I concentrate on homebrew development communities that coalescence around outmoded videogame hardware platforms. Many consoles of the 1980s and 1990s produced hobbyist homebrew communities who went on to develop original games for these platforms following their market obsolescence. In addition to the NES, popular retro-game platforms with notable homebrew communities include the Commodore 64, Amiga, ZX Spectrum and Atari VCS.

For instance, Nick Montfort and Ian Bogost (2009) discuss the Atari VCS homebrew community in their book *Racing the Beam: The Atari Video Computer System*. They highlight the community's commitment to "using and refining emulators, writing disassemblers and development tools, and even manufacturing cartridges and selling them, complete with boxes and manuals", all activities mirrored in the NES homebrew community (155). Montfort and Bogost compare the Atari VCS community to zine authors or unsigned bands, offering free downloads of many of the games. However, these comparisons seem to downplay how the sale of boxed copies for some Atari VCS games implicates the community in the commercial practices of production and distribution, albeit through informal channels. More importantly, though, the sale of boxed copies illustrates the way nostalgia becomes bonded to material objects associated with the past. Indeed, the impetus for many NES developers to engage in homebrew is because the possibility exists to create a physical game cartridge. Consequently, this cottage industry of online storefronts exists because of the value attributed to physical game objects by the retro homebrew development and collector communities.

Like NES games released in the late 1980s and early 1990s, many NES homebrew games can be purchased in boxes complete with original artwork, slipcovers (like dust jackets for cartridge games) and instruction booklets. The material components associated with the videogame experience, which Raiford Guins (2014) refers to as "ephemera" and Carly A. Kocurek (2013) discusses as "feelies", provide significant meaning to NES homebrew developers and players. Placing the actual cartridge in the console, hitting the power button, holding the controller in hand, reading the instruction manual, seeing the art on the game box (Figure 7.1), placing the complete in box game on the shelf next to

a library of other NES titles – these practices and experiences all contribute to the meaning and value of the technology for the culture of NES homebrew developers and players. Indeed, if homebrew "feelies" do not invoke a return to the imagined or actual past, they at least create cohesion and continuity with that past, echoing the material qualities of game objects in that era and conjuring a time many view as the origins of their relationship with videogames.

This emphasis on capturing the essence of the original material qualities of the NES also carries over to the design of the games themselves. Titles like Gradual Games' *Nomolos* (2012) and *Legends of Owlia* (2016), Sivak's *Battle Kid* (2010, 2014) games, and Julius Riecke's *Super Bat Puncher* (Miau 2011) all draw inspiration from classic franchises on the NES. When discussing his approach to designing the action platformer *Nomolos*, Gradual Games' Derek Andrews (2014, pers. comm., 15 February) admits, "I didn't want to do anything super original. The only thing original I wanted to do was the character or story. The rest of it I wanted to feel very much like *Ninja Gaiden* (Tecmo 1988) or *Castlevania*, for example, but actually with fewer game mechanics". As a result, *Nomolos* features the same walking, jumping, and attack mechanics of many NES games. As a cat dressed in a knight's armor, players walk along a two-dimensional plane, jump between platforms and attack enemies that move across the screen in specific patterns.

Figure 7.1 A comparison shot between an original NES game cartridge from 1988 on the left and a homebrew cartridge from 2010 on the right illustrates the degree to which the homebrew community goes to recreate the industrial designs of the past. (Author's photo)

For Andrews and other NES homebrew developers, getting the 'feel' of the games they remember from their youth is paramount when approaching the development of a NES homebrew game. Jordan Odorica's *Battle Kid* series draws heavily from NES games like *Mega Man* and *Metroid* (Nintendo 1986). We can see these influences in *Battle Kid*'s use of static rather than scrolling game screens, as well as the game's emphasis on jumping and shooting precision. Moreover, like *Mega Man* and *Metroid*, *Battle Kid* distributes character upgrades throughout the game, allowing players to gain new abilities and powers as they progress. In the case of *Super Bat Puncher*, developer Julius Riecke (2014, pers. comm., 29 January) explains, "Sunsoft games are a huge inspiration. Especially *Gimmick!*" a Sunsoft game that never saw release in North America until the homebrew community localised the game in 2010. Indeed, rather than original properties, some NES homebrew games are "demakes", game properties that have been reimagined on older hardware, or "reproductions" (repros), new copies of previously released games that are rare or only previously available in particular territories. One popular demake is *Halo 2600* (AtariAge 2010) on the Atari VCS, whereas the aforementioned *Gimmick!* (Sunsoft 1993) is an example of a reproduction. In addition to a nostalgic desire to recreate the conditions of the past, another reason that NES homebrew games stick so close to classic designs is the sheer difficulty of developing NES games as solo projects.

One of the common pressures that homebrew developers face is the tendency to burn out or abandon projects. Further exacerbating development challenges, most NES homebrew developers have to balance their labor-intensive hobby with full-time work and everyday domestic duties. The husband and wife team of Gradual Games, for instance, schedules development for two nights a week (Andrews 2014, pers. comm., 15 February). This schedule assuages the tendency to burn out but also extends development time to several years. Work not handled in-house by a friend or family member for free is usually outsourced to freelance contributors who, according to *Battle Kid* developer Ordorica (2013, pers. comm., 24 December), generally agree to a small sum of money and a free copy of the completed game. In this way, although not always freely provided, the labor of NES homebrew development shares affinities with the gift economy, predicated on free labor (Terranova 2004), often associated with fan communities where compensation is secondary to the act of producing cultural content for the community (De Kosnik 2013). Owing to the multiple roles NES homebrew developers have to inhabit, work on these projects is often uneven, riddled with disjuncture and fraught with delays and cancellations. Indeed, as hobbyist ventures with little to no commercial imperatives or hard deadlines, NES homebrew games can take several or more years to complete. As a result, few NES homebrew games have been completed so far, although hundreds of prototypes and demos have been built.

Having to wrestle with the limitations of hardware that is more than a quarter of a century old and learn the 6502 assembly coding language significantly contributes to this extended development time. The websites NESDev.com and NintendoAge.com, among others, offer community-run tutorials in assembly code, a resource that helps transfer essential skillsets from experienced NES programmers to newcomers, helping to maintain the small production culture. To further encourage engagement, people from both of these online communities help organise an NES coding competition, which offers small cash prizes and encourages periods of dedicated development. The contest's best submissions are compiled and sold as a single NES cartridge, the first being a game cart titled *Action 53 Function 16 Vol. 1* (Infinite NES Lives 2013).

Contest organisers chose the name *Action 53 Function 16* for two reasons. First, it parodies an unlicensed multi-game cartridge called *Action 52* released in 1991 by Active Enterprises (Weber 2010). The unofficial cartridge included 52 incomplete and glitchy games designed by college students that Active Enterprises employed for three months. Second, *Function 16* refers to the number of games, tools and demos included on the competition compilation cart. With the *Action 53 Function 16* name, NES homebrew organisers pay homage to earlier examples of unofficial NES cartridge production. Yet while Active Enterprises and its founder, a shady Florida-based businessman named Vince Perri, produced *Action 52* to cash in on the rising popularity of videogames in the early 1990s, NES homebrew developers produced *Action 53* to offset the costs of holding the competition and celebrate the best examples of NES homebrew development, particularly the game *Streemerz* (Arthur Lee 2010), a short platforming game built around a grappling hook mechanic. The first batch of 50 carts for *Action 53* sold out immediately, and the game has since sold every one of the 150 cartridges that have been produced.

Packaging and Selling the 8-Bit

For years following the commercial demise of the NES, what little NES homebrew production existed was distributed through the back channels of the Internet via free direct downloads or torrents. As Nathan Altice contends in his examination of the NES platform, the NES' demise in the 1990s corresponds to the rise of console emulation on PC hardware, leading to "new forms of play, performance, and videogame archiving" in the form of ROMs, or read-only memory files (7). Digital ROM files were hosted on private websites, traded via peer-to-peer technology and played using emulation software on computers. Indeed, the lack of authentic game carts for NES homebrew games was a large reason that so few people engaged in the activity, since the payoff was only a digital ROM file, not something that could be played on the original hardware or put on a shelf next to other NES games.

However, this changed in 2005 when, reportedly, the first physical NES homebrew game cartridge, affectionately called "Garage Cart", was sold online in a limited run of just 24 units. Garage Cart consisted of three games housed in one game cartridge. According to the website NintendoAge, "The Garage Cart is widely regarded as the father of the NES homebrew scene, and is, to the best of our knowledge, the first ever homebrew released in cart form" (*NintendoAge* n.d.). Garage Cart was produced by Joey Parsell and sold for $42 in June 2005, two years before the launch of RetroUSB (sometimes referred to as RetroZone), a storefront that would become synonymous with NES homebrew games, particularly the *Battle Kid* series. Ramon Lobato (2012) defines distribution broadly as "the movement of media through time and space", a move that allows him to take seriously informal channels of media movement, what he calls shadow economies, which he suggests are actually the global norm rather than an exception to formal, regulated channels (2). Since 2007, a burgeoning shadow economy has developed for NES homebrew games through the sale of physical cartridges online. Driven by a materialist NES collector culture that values game objects as much as or more than the bits and bytes of game software, two dominant online stores, RetroUSB and Infinite NES Lives, have emerged to centralise the previously amorphous, anarchic distribution of NES homebrew game ROMs.

Operated out of Redwood City, California by Brian "bunnyboy" Parker, RetroUSB was one of the first companies to publish new physical NES games since the mid-1990s. This was made possible after Parker bought the rights to the Ciclone chip, a component capable of bypassing Nintendo's 10NES security. The 10NES security chip prevented unlicensed games from running on the NES console and for years confined NES homebrew to PC-based emulation (O'Donnell 2010).

As part of its market domination in the mid-to-late 1980s, Nintendo maintained tight control of the content available for the NES through both technological and legal means. Under the pretense of quality control, Nintendo had the final say on what games could or could not be released for its platform. Nintendo prevented developers and publishers from bypassing its quality control through the use of the 10NES security chip. Using its position of power to its economic advantage, Nintendo required publishers to pay for every game cartridge they wanted produced in advance, regardless of whether the game ended up selling or not. Any publisher that tried to reverse-engineer Nintendo's security chip and release unlicensed games was quickly slapped with lawsuits. Fortunately for NES homebrew developers, after Nintendo ceased production of the NES in 1995, the company had little incentive to sue unlicensed developers working on its obsolete console. Unfortunately, despite the 1993 release of the NES-101, a redesigned version of the console sans 10NES security chip, the majority of NES systems in circulation still have the

10NES chip. This technological obstacle discouraged homebrew developers from producing physical carts for many years.

RetroUSB's Ciclone chip arguably revitalised NES homebrew culture, heralded by the release of *Sudoku 2007* (Sialagogic 2007), an NES version of the popular puzzle game and the first homebrew cartridge released through the shop. The release of *Sudoku 2007* inspired Jordan Ordorica to develop his own NES games under the moniker Sivak Games, eventually culminating in 2010's *Battle Kid: Fortress of Peril* and 2013's *Battle Kid 2: Mountain of Torment* (Wahlgren 2010). Most NES homebrew games are released in small quantities ranging from 50 to 100 cartridges. Once those sell out, which inevitably happens, additional batches are produced based on demand. While Ordorica is reluctant to give sell-through numbers on *Battle Kid*, another NES homebrew developer estimates that the game probably sold between 1000 and 2000 units, more than any other NES homebrew cartridge to date (Riecke 2014, pers. comm., 29 January). Most of this demand is concentrated in NES collecting cultures that gather on websites like NintendoAge. These collectors regularly discuss games as they are in development, anticipate their release and view the latest homebrew games as legitimate entries in the NES game library. Accordingly, purchasing each new release is paramount to maintaining a complete, canonical collection. As a result, most completed homebrew games, regardless of quality, will probably sell upwards of 100 copies to the small but active community. In addition to games, other items the RetroUSB store sells include: (1) retro adapters that connect old game controllers to newer hardware, like the Wii console, to play emulated games with their corresponding authentic controller; (2) reproductions of rare game carts or carts that were never released in North America; (3) the PowerPak that allows the entire NES library to be stored on a compact flash card and played on a single NES cartridge; and 4) development tools that allow people to extract ROM data from NES games and "dump" them onto their computers to distribute online.

Meanwhile, in 2009, an electrical engineer in Idaho named Paul Molloy started to build and sell his own custom USB-based classic controllers for use with PC emulators. After initial success on eBay, in 2010 Molloy launched the Infinite NES Lives website to sell modded USB controllers and other NES-related technology that he developed himself. Since then, Molloy has devised several variations of the NES cartridge circuit board, allowing for more robust games. The site also sells NES homebrew games. With a stable supply of game circuit boards from China and the capability to build his own cartridge shells on demand, Infinite NES Lives provides production kits – consisting of circuit boards, cartridge cases and data transfer solutions – that allow individual NES homebrew developers anywhere in the world to build and distribute their own physical game carts either on their personal websites or through the

Infinite NES Lives website. The first batch of games to take advantage of this included Gradual Games' *Nomolos*, *Nighttime Bastards* (One Bit Games 2014) and *Armed for Battle* (1010 Howe 2014). In essence, by providing the means of physical NES cartridge production to homebrew developers, Molloy is attempting to break down the barriers associated with current physical distribution options, which mostly consist of a RetroUSB monopoly. Molloy hopes this self-publishing option will encourage more people to finish their NES homebrew games and grow the number of completed projects and distribution outlets, making for a more diverse and lively community.

Resisting Planned Obsolescence

Unlike some alternative game development scenes, NES homebrew games are not ostensibly oppositional in their aesthetics, politics or mechanics. This follows for a number of reasons. This production community is overwhelmingly composed of white males between their late 20s and mid-30s. These men were introduced to videogames as children through the NES and have an emotional, nostalgic relationship to the hardware and games of that era. Thus, driven primarily by an ethos of nostalgia, these developers tend not to enter game development from a place of social, political, or economic critique; instead, they engage in development with the desire to preserve or recreate the experiences of classic Nintendo games. Yet as the field of Fan Studies illustrates, the work of seemingly nonpolitical fan communities often takes the shape of political engagement, something Henry Jenkins (2012a) calls "fan activism". In a new forward to his seminal *Textual Poaching*, a book concerned with fans appropriating and reimagining their favourite fictional worlds, Jenkins (2012b) discusses the tension that often arises in fan communities between producing entertaining work that speaks to the object of their fandom and producing work that engages critically in larger societal and cultural conversations. Jenkins describes this as the "play vs. politics" debate, yet stresses that in fandom, in fact, the two often take the form of the other. As illustrated previously, however, NES homebrew production commonly leans more toward the "play" than the "politics" end of the spectrum.

One exception to this rule is educator, artist, and homebrew developer Rachel Weil. Weil's games *Electronic Sweet n Fun Fortune Teller* (2013) and *Track+Feel II* (2012) are part of a larger project that attempts to recuperate the feminine in popular culture, which is so often trivialised in culture. Instead, Weil's NES homebrew experiments invite us to imagine an alternative history for NES development that catered to feminised videogames, rather than the masculinised military and action games that dominated the system (Weil 2015, pers. comm., 29 April). Wrapped in a pastel aesthetic, *Electronic Sweet n Fortune Teller* provides players

with horoscope reading that predicts their romantic futures based on personal information players provide. Meanwhile, the more enigmatic *Track+Feel II* combines the forms of an NES game with a glitch art exhibit. The art game invites two players to cooperate to solve the goal of the game while being bombarded by images of cascading yin yang symbols, roses and two women longingly staring into each other's eyes.

In contrast to Weil's exploratory NES homebrew games, most other NES homebrewers concentrate on recreating established genres like action, adventure, or role-playing games. Nonetheless, despite the overall NES homebrew community's preference for preservation and reconstruction rather than cultural critique, I contend that their work is still political based on its premise if not necessarily its textual form or content. As a production community dedicated to hardware that has long since lost its commercial value, the work of NES homebrew developers arguably challenges the practice of planned obsolescence, the industrial strategy of building failure or obsolescence into products for the purpose of ensuring the sale of replacement products. In a globalised era of production and commerce, planned obsolescence has become a standard capitalist practice across the world, particularly in the information and communication technology, consumer electronics, and videogame industries. The result of these practices is a rapid increase in the production of electronic waste or e-waste.

Richard Maxwell and Toby Miller (2012) have examined the often-ignored manner in which the production and consumption of media technology contributes to the despoliation of the environment. Specifically for the gaming industry, the authors accuse Game Studies scholars of largely ignoring the ecological impact of gaming technologies. Moreover, they accuse videogame scholars of succumbing to the rhetoric of "technological sublime" and "technophilia" discourses that espouse the positive attributes of new technology to improve our world while marginalising or erasing the disastrous, material consequences of the overproduction and consumption of consumer electronic goods. Highlighting the lifecycle of electronic games, Maxwell and Miller argue that "rapid innovation and planned obsolescence accelerate both the emergence of new electronic hardware and the accumulation of obsolete media, which are transformed overnight into junk" (184). This process is glaringly apparent in the gaming industry where platform holders release new game consoles every four to eight years.

In the dominant philosophical narrative of human progress supported by the gaming and consumer technology industries, NES homebrew production and consumption represent an anomaly. More importantly, NES homebrew production and play suggest an opportunity for environmental action and economic critique should game players organise around these principles. Kline et al. (2003) describe the game industry's imperative to continually reinvent itself through iterative products

as the "perpetual innovation economy", an economy that trades on the rhetoric of the technological sublime that Maxwell and Miller critique (66). Similarly, James Newman (2012) identifies the industrial practice of planned obsolescence as a main component of the innovation economy and contends that discourses obsessed with "new games" in marketing, journalistic and industry discourses undergird and support this practice (66). Though digital games only contribute a small percentage of the total e-waste tonnage produced every year – large industrial machines and household devices like refrigerators make up the majority – the consumption of gaming technology is intimately connected with the consumption of other electronics like televisions and computers, each of which is regularly upgraded by enthusiast gamers and technophilic consumers.

As a solution to this daunting problem, Maxwell and Miller propose the development of "green citizenship", a term borrowed from the eco-political economist John Barry (2006). Admittedly, the NES homebrew community does not fit neatly into Maxwell and Miller's green citizenship model. This is the case not least because they are not motivated by activism or environmental awareness, nor do they consciously strive for positive environmental change at the level of discourse, politics, or direct action. Yet their dedication to salvaging, restoring, and preserving original NES technology demands recognition. For Lisa Parks (2007), "salvaging" media involves "saving, repurposing, and/or benefiting from old hardware" (33). Parks describes salvaging as a practice that showcases "how hardware persists, lingers, and refuses to disappear even despite the dictates of a market economy" that would rather it remain in the junk piles of the world (34). Indeed, fans on sites like NintendoAge routinely rescue dilapidated NES consoles from disuse and resell them to other members of the community. For instance, during my research for this chapter, I was even able to purchase a fully restored NES from a user on the NintendoAge forums. Additionally, stores like Infinite NES Lives scour eBay for bulk sales of broken retro controllers, disassemble them, salvage their working parts and construct working controllers out of the pieces. Again, while this is not an environmental movement in and of itself, the practices and values of retro homebrew communities provide a model for resistance to the standard, unsustainable practices of the consumer electronics industries.

When Nintendo abandoned the NES to the annals of history, a small but dedicated group of developers, collectors and players decided to rescue it. As I have argued, NES homebrew development differs from the interests of the retro-gaming industry, which seeks to control access to canonical games and exploit player nostalgia to generate profit. Although a small shadow economy has blossomed around the development and distribution of a small number of NES homebrew games, the development, distribution and salvaging practices of the community suggest

an intriguing, though unorganised and accidental, model of grassroots resistance. Retro-gaming homebrew, exemplified here in the case of NES homebrew, insists on the continuing value of aging technology in the face of rapid innovation, preserves historical development practices and industrial designs and encourages a model of game development and play that indirectly challenges the larger cultural myth of the technological sublime and opposes the consumer electronics industry practice of manufactured obsolescence.

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8 Museums of Failure

Fans as Curators of "Bad", Unreleased, and "Flopped" Videogames[1]

Víctor Navarro-Remesal

Which games are worthy of being preserved? What constitutes a classic in videogames? Are gaming communities dedicated only to these classics? Must failures be preserved? The research done by authors such as Pérez-Gómez (2009) or Stuckey, Swalwell and Ndalianis (2013) suggests that gaming fandoms usually operate on notions of historic and artistic merit, nostalgia and personal preferences. Fandom curating is more anarchic, unruly and organic than that done by the industry (via commercial re-releases or retrocompatibility) or established agents (such as museums or universities). Fans may be less reliable as historians but, at the same time, they engage with and record aspects of the history of the medium that are usually left behind by official institutions.

Gaming curation as practiced by fandom draws attention to three challenges to the idea of a classic text by accommodating: games that are universally considered 'bad'; games and systems that were never released; and games that were released but 'flopped' (failed commercially). These three types can be summarised as 'failures' and all of them, as this chapter shows, have some kind of coverage and cataloguing in online fan communities.

Why do fans focus on failures? How do they decide which kind of failed products need to be saved from oblivion? Are they willingly curating history or fulfilling other types of needs? How are these communities organised?

The White Paper on Digital Games Preservation by the International Game Developers Association Game Preservation Special Interest Group (Lowood 2009) affirms that "studying failure is often highly beneficial" and given the amount and variety of work being done by fans on gaming failures, fans seem to be aware of it to some extent. Their curation seems to pursue the adjudication of cultural status to works disregarded by the establishment. By studying fan curation we can examine the tension between different agents of gaming culture, the importance and attraction of the history that never or almost was, the process by which this history becomes part of the official history and the way contemporary pop culture has embraced failed works, either ironically or with honesty.

Fans as Curators: From Personal Story to History

Contemporary gaming culture (and its technologies, social dynamics and design trends) favours a constant exchange, storage, discussion and manipulation of information about games past and present. What used to require professional tools and insight can now be accomplished with widely accessible, user-friendly technology like: desktop recording and video editing software, editable open databases and wikis, and YouTube and Twitch channels. Fans are constantly documenting gaming history on the spot, managing their heritage through their practice even if they are not aware of the role they are playing as curators. At the same time, they create new texts such as walkthroughs or Let's Plays. Now, more than ever, they are, as Carlson (2009a) calls them, "insiders" of the gaming industry who "move in and out of communities and related social activities".

But fans' activity is heterogeneous and is characterised by several (often competing) interests. There is no such thing as a unified gaming community but a set of interconnected and always changing groups, which are chaotic by definition. Even the general notion of "fan" must be questioned, because one could distinguish players in general (interested in the work but not necessarily in the community) from individual fans, fandom or fan communities, and also from "devotees" (Kozinets 1999), characterised by lifelong interests in the brand but limited commitment to the social community. For this reason, it would be advisable to avoid thinking of fans as a singular category with shared criteria and objectives, supporting or opposing the industry. There are multiple ways in which different groups of fans negotiate their relationship with history, its writing and its classics. What fans share is a love for the games and platforms they enjoy, a dedication to them that goes beyond the act of playing, a vast personal knowledge about them, and some important, but non-professional, dedication to them.

Consequently, it is difficult to define the fan and place him or her within the gaming ecosystem. Hill sees the fan as the "ideal consumer" (2002, 29). Others seems to disagree: Carlson (2009b) writes about "the unruly nature of contemporary gaming spaces" and uses the message board NeoGaf as an example of a space "where game developers, corporate executives, journalists, and fans all merge, each performing their expertise and battling [...] over who has the right to mediate commodity value". Jenkins considers fandom as a space that represents a critique of the more conventional forms of consumption of cultural products (1992, 283). Salen and Zimmerman even talk about fan remakes as "strategies of resistance" (2004, 559).

Fan practice can be spontaneous but this does not mean that it does not include discussion and analysis. Pérez-Gómez (2009, 233) writes about retro-gaming as an act of "self-reflection" by the players who

conceive of videogames as culture and entertainment: "In retrogaming it is the users, and not the brands of the official developers, who reflect upon and take decisions about the processes of creation and development of games". The preservation of failed games by fans is usually another type of resistance, where fans take charge (against, or at least aside from, industry decisions) of the writing of gaming history. Their intention seems to be to reframe these works as different types of cultural capital (Bourdieu, 1986).

Gamers can act as private collectors and create communities to share tips on how to curate their own collections. This is what Guttenbrunner, Becker and Rauber (2010, 76) call the "museum approach" of preservation. Gamers can also hack games and program emulators to play them in different contemporary machines: this is the "emulation" strategy. Guttenbrunner et al. list another two strategies that normally fall outside the scope of fans: "backwards compatibility" (making a new platform compatible with its precursor) and "migration approaches" (porting the game to a different system). These are industry strategies and fans can only push for them through their demand for and dedication to a game.

Except for the museum approach, all of these strategies involve changes to the experience of play. For some, the original hardware is of the utmost importance to the experience as it was created, as Montfort and Bogost (2009) affirm. Newman (2012) has argued against the use of emulators as tools of preservation. For him and the team at the National Videogame Archive, loss of context in emulation is a primary issue and the technology (controller, the television sets the platforms were designed to use) must also be preserved. The curator of the Museum of Soviet Arcade Games, Oksana Kapulenko, defends the preservation of the original object as well so players can have "the original experience": "they are meant to be played, not examined like specimens" (Winet 2015). Fans, with their personal perspective, usually love this "museum approach" and have a love for "the original experience" that Swalwell (2013, 1) calls "problematic": this "privileging of the original experience" creates "a need to liberate critical thought from this paradigm" and results in two different cultures: that of the critic, and that of the game lover. Swalwell asserts that "games are not likely to remain playable in their original forms in the future" and that "choices must be made" about what to preserve.

In spite of this love for the original, some fans are preserving, perhaps unknowingly, not the physical object or the code of the game itself, but their own experiences of play, with Let's Play videos (spontaneous play sessions with real-time commentary), longplays (recording of a play session from the start to the end of the game), speedruns (total completion of a game with the added exhibition of skill in speed) or reviews (a thorough commentary of the game). For Carlson (2009a), "researchers must acknowledge that games are social experiences and not simply still-life

texts". What the fans are producing and documenting in these online, open pieces on services like YouTube, Twitter and Twitch are often recollections of their subjective and social experiences with games and, therefore, even as a by-product, they are preserving portraits of the game as a designed experience. They may not privilege them as history, but they are saving them nonetheless. In this regard, all of this production by fans is potentially relevant for the industry and the history of games.

No matter how well-intentioned their efforts are, the willing or unwilling curation of games as objects, software or play experiences by fans can present some legal and methodological problems. Bachell and Barr (2014, 143) state that "their efforts are hampered by the often arcane legislation that protects digital games from piracy and other unauthorised activities". Recordings of games can be subject to copyright laws as well. For Gooding and Terras (2008, 23), "the hobbyist nature of the work done [by fans] also means that the community is vulnerable to skill loss, erratic decision making and basic loss of interest among participants". Newman (2012, 26) warns against overstating the degree to which fan-based projects compensate for the current lack of academic and heritage sector activity. Fan curating can suffer the lack of a valid or stable set of criteria, community instability and copyright problems. Nevertheless, these caveats do not negate its merits.

Curating and Merit: What Makes a Classic

What type of games do fans consider worthy of being preserved? What makes a classic for fans? Swalwell (2016, 46) analyses how the term is used and the reasons for its use: "To claim that a game is a 'classic' is ultimately to make a judgment about its cultural status, value, or meanings. The term operates rhetorically to persuade one of the importance of the said game or the experience of the game". The term 'classic' gives a game value in a symbolic and material sense. Swalwell warns that "given that digital games have historically been popular objects of low cultural status, we might pause to consider the cultural work that is done by making them into classics". We could relate this work to economy and social status using Bourdieu's (1986) notion of "cultural capital", the ideas and knowledge with social worth available to the individual. In a wider sense, we can see cultural capital as the socially assigned value of knowledge and cultural objects. For Bourdieu (1986, 84), "cultural capital can exist in three forms: in the *embodied* state, i.e., in the form of long-lasting dispositions of the mind and body; in the *objectified* state, in the form of cultural goods [...]; and in the *institutionalized* state, [...] in the case of educational qualifications". By discussing what makes a classic, we are not only debating the criteria to talk about the medium, we are assigning value to cultural goods and knowledge about them.

Museums can contribute by selecting a canon of classics, and each museum has a different stance on what it needs to preserve. For its initial selection of 14 videogames exhibited in its Applied Design section, The Museum of Modern Art (MoMA) followed criteria that emphasised "not only the visual quality and aesthetic experience of each game, but also the many other aspects – from the elegance of the code to the design of the player's behavior – that pertain to interaction design" (Antonelli 2012). They take the "advice of scholars, digital conservation and legal experts, historians, and critics […] to study, preserve, and exhibit videogames" seeking "a combination of historical and cultural relevance, aesthetic expression, functional and structural soundness, innovative approaches to technology and behaviour, and a successful synthesis of materials and techniques in achieving the goal set by the initial program". The approach of the National Videogame Museum, recently opened in Frisco, Texas, is slightly different. It was envisaged as a dedicated public institution to, as it is explained in its old website (VGHmuseum.org 2012), "document, preserve, and archive the history of the Videogame industry". Whereas MoMA favours the game, the designed object, the National Videogame Museum aims to document the creation and evolution of the industry.

Some fans, especially those in retro-gaming communities, also contribute to the discussion about the idea of classics. The assistant director of the retro-gaming expo RetroMadrid 2010, interviewed by Pérez-Gómez (2009, 224–225), indicates that to consider a game a classic not only does it need "to be outdated and technologically overtaken", but also "have set the foundations for the future of its genre" or "to combine already seen elements in a masterful manner and to improve upon them". A classic is, for them, old, innovative at its time and has achieved some degree of excellence in its design. The matter of time is put in the forefront, and there is a "contradiction between considering games in the context in which they were created" and considering them "timeless" (Swalwell, 2016, 47–48). Guffey (2006, 9–21) explains that retro champions the revival of pop culture and other non-serious aspects of the recent past, and entails a relation to the past that is often "non-historical". This relationship with the past is articulated by nostalgia, which for Swalwell "has been the dominant mode of remembering early games for at least a decade now" (2016, 49), causing collectors and enthusiasts of retro games to "have strong personal and emotional investments in game history". It could be argued that fan curating is an attempt to give cultural validity and relevance to their own emotional investments.

Last, the industry can also make use of the "classics" label, either for re-releases of previous works or for merchandise. Swalwell notes that retro-gaming merchandise has entered the mainstream, and the hobby has been commodified (2016). Nostalgia has become a main selling point of re-released games or revitalised franchises. The adjective "classic" can

appear in marketing materials or even in the name of a curated collection (like Sony's "PSOne Classics"). Old games can be re-released as they were or, more commonly, modified and adapted to new platforms and trends. What is understood as valuable is the content, although a new version of it rather than the original object (and its context): improvements and new content are often used as selling points. This preservation follows market logics, turning an object from the past into a new commercial good.

Challenging the Classic Text: "Bad", Unreleased, and "Flopped" Games

There are, thus, multiple criteria for the preservation of a game: antiquity, innovation, excellence, historic value, visual quality, aesthetic expression, cultural relevance, good use of technology, significant interaction design and commercial success. The games analysed in this chapter fit few or none of these criteria (except, usually, antiquity) but they are nevertheless preserved and discussed with the same dedication as the classics. This seems to challenge the very idea of a classic: if they have some value that justifies saving them from oblivion, are they not classics? We can separate three types of failures: 'bad', unreleased and 'flopped' games. Each type contradicts the notion of a classic in a different way, presents distinct preservation difficulties which fans accept to face, and each has strategies to be given value as knowledge, as a cultural object, or as the original physical good. The very act of assigning these games value implies two things: that fans think the establishment has overlooked these works and that they are actively resisting the establishment's criteria and constructing criteria of their own.

"Bad" Games

The first example of failed games discussed here is works universally regarded as 'bad' by critics and players. Contemporary pop culture has a fixation with bad works, especially if they are unintentionally funny. The phrase "so bad it's good", or, as Sontag puts it on her 'Notes on Camp' (1964), "it's good because it's awful" (note 58), is a well-known motto.

Sontag explained camp as a "wholly aesthetic" sensibility whose point was "to dethrone the serious" and establish a new, more complex relation to it (note 41). A camp text is "unintentional" and "dead serious" (note 19), and its consumption as such is "a mode of enjoyment, of appreciation – not judgment". To enjoy a camp text is thus to "find the success in certain passionate failure" (note 55). Flynn-Jones (2015, 263) stresses the love that has gone into the object, "and if that love is not present then it is but empty kitsch". For example, Sconce (1995) writes about "paracinema" (the enjoyment of bad movies) as a subculture of

"oppositional taste". This movement aims to valorise "trash" films that "have been either explicitly rejected or simply ignored by legitimate culture" (1995, 372), not by giving them any cinematic merit but by using an "ironic reading strategy" that "render[s] the bad into the sublime" (386).

Videogames have their share of infamous texts, from the ridiculousness and homoeroticism of *Cho Aniki* (Masaya 1992) to the weird ludonarrative combination of mechanics and setting of *Bible Adventures* (Wisdom Trees 1991). "Bad" games such as *Escape from Bug Island* (Spike 2006), *E.T. the Extraterrestrial* (Atari, Inc. 1982), *Superman: The New Adventures* (Titus Software 1999), *Big Rigs: Over The Road Racing* (Stellar Stone 2003) or *Hong Kong 97* (Happysoft,1995) are as well-known to expert fans as some indisputable classics of the medium. If cinema has paracinema, videogames have "kusoge": a Japanese compound term that combines "kuso" ("crap") and "gêmu" ("game"). This word has its own spin on the ironic enjoyment of bad culture: the website HardcoreGaming101 (2015) specifies that kusoge culture "revels in mockery and silliness". To specify what constitutes kusoge, it provides a list of traits: the graphics are awful, the writing and voice acting are terrible, the game scenario is fundamentally ridiculous, the game is excessively tedious and boring, terribly programmed, excessively difficult, intentionally obtuse and/or intentionally stupid or bizarre.

The enjoyment of kusoge seems to be, like Camp, "wholly aesthetic", focussing not on the rules or the fiction of the game but on its design as an artifact. For Phillips (2013a), the "kuso" aesthetic matters for three reasons: first, "it pushes against the borders of fandom itself" and "calls into question where the line of normalcy can or should be drawn". Second, it "challenges the seemingly straightforward distinction between like and dislike, hegemonic and counterhegemonic readings, fan and not-fan". Like paracinema, kusoge can be seen as an "oppositional taste". And third, "it reminds us that the things we like are directly and inextricably connected to our individual social circumstances". "Liking things", Phillips (2013a) writes, "is always political in that it is always informed by larger and more complicated cultural forces": kusoge, then, cannot be separated from privilege. It may seem intent on fighting high culture and the privilege associated with it, but for Phillips, "only those who have fully internalised the rules [...] will be invested in the degree to which they are followed". Bad content breaks the rules, and discerning it from the good but still enjoying it implies a relation with the "standards against which cultural output at a specific moment in history is measured" (Phillips, 2013b).

Flynn-Jones (2015, 262–263) writes about kusoge and differentiates two modes of appreciation: "As players we can have a warm, fond affection for the bad aesthetics of videogames in terms of their Camp appeal and in games culture we can participate in the amusement of the memes that bad games create". The first is the mode of "kusoge fans" and the

second is that of "purveyors of kuso culture", and while both "love a good-bad game we must appreciate that the nature of that attachment is deeply different".

The enjoyment of bad games has also two unique conditions that separate it from other forms of social consumption of bad culture. First, Flynn-Jones (2015, 255) follows Juul (2009) and argues that "as a movement paracinema rebels against the acceptable standards, but [...] videogame form is still under dispute". Second, as Thompson (2007) writes, the fact that games must be played creates a difficult position for the player who wants to mock them: "When a game is bad, it's just bad [...] It's impossible to distance yourself from the badness. It's not like chuckling while watching an actor screw things up, it's like being forced to screw up yourself".

This could be the reason why one of the most famous kusoge sources are the comedic reviews of *The Angry Video Game Nerd* (AVGN), a YouTube show created by James Rolfe in 2004 which, by January 2016, had 138 episodes, each one analysing one or several bad games. Rolfe owns a vast collection of retro games and systems and always plays them in their original form, in a room showcasing his personal collection. A reviewer explains that "the games that the Nerd typically plays fall under one of three categories: otherwise decent games that feature relentless difficulty, average games with a number of very curious or backwards design choices, and outright festering ass" (Ponce 2013).

The AVGN videos fall within a new trend of YouTube entertainment. On his website, CineMassacre.com, Rolfe writes: "Remember this is for comedy. Sure my gripes with the games stem from truth, but they are exaggerated". Entertainment comes first and gaming culture second. Rolfe focusses on old games (he affirms that his "show is all about nostalgia") and does not follow selection criteria beyond the inner logic of the show, his personal taste and the entertainment value of the game in question.

Figure 8.1 Screenshot of YouTube show: *The Angry Video Game Nerd*. James Rolfe, Cinemassacre Productions.

Rolfe's show spawns from personal history: "I made videos where I commented on Nintendo games back in the late 80s/early 90s when the games were actually current". Then, in 2004. he made an "angry review" of *Castlevania II: Simon's Quest* (Konami, 1987) and a second one appearing on-screen as his "nerd" persona, but did not upload them to the Internet: "they only existed on VHS tapes, circulated around to my friends". Rolfe uses the word "fan" to describe his rise to fame: "Later, after YouTube was invented, I began uploading the nerd videos and they rapidly gained a fan following which prompted me to make more". He never loses this personal perspective, as many of his chosen games have a direct relation with his history as a gamer.

As of January 2016, the Cinemassacre YouTube channel has 1,977,469 subscribers with a total of 790,597,203 views. Some viewers just follow his updates without participating, while others comment on his videos and contact him by email. In addition, a community of fans of the show created a wiki (started in December 11, 2008) with a current total of 500 articles and 22 forum threads. The wiki is described as "the place where Angry Video Game Nerd fans gather" and its goal is to create an "ongoing record of this series". The games themselves are kept in the background: AVGN fans enjoy the bad games he plays because he plays them. The Nerd could be seen as a "kusoge fan", in Flynn-Jones's terms, whereas his fans are "purveyors of kuso culture" in the sense that they enjoy "the memes that bad games create", specifically the memes the Nerd creates from playing bad games.

What is being preserved in the AVGN show and in the community that follows it? While Rolfe gives ample information about the games he analyses, he emphasises that his goal is to create comedy. The allusions of the Nerd to his past as a gamer may be valuable in themselves, since, as Stuckey et al. (2013, 215) write, "memories of playing games with computers have an important role in terms of documenting people's personal relationships with computing history". Besides this, Rolfe discusses the games in a wider context, comparing them with their contemporaries and general popular culture. In some way, he is debating videogame form, and this could be seen as an act of creation of standards (and of the privilege of knowing these standards). At the same time, the Nerd seems to solve the problem that Thompson posed: he plays bad games so we, as spectators, can enjoy their campiness without "being forced to screw up" ourselves. With this distance, we can exercise "oppositional taste", "ironic consumption" and turn "bad" games into, as Juul (2009) calls it, "paragaming". The Nerd curates "bad" games heritage, acts as an ideal collector of "the original", shares his personal memories, analyses kusoge, and records his play experiences to turn them into entertainment. Preservation is only a by-product.

Unreleased Games

Another type of failed videogame is that which was never released or even finished – games that failed before officially existing. Vowel (2009) defends the preservation of information about the development process arguing that "if we place too much emphasis on preserving only published games, we relegate much of the history behind games to the shadows". This could be applied to unreleased games: if we only preserve published games, we will never know what was left behind and its mark on gaming culture. The 'Digital Game Preservation White Paper', edited by Lowood (2009, 17), explains that "it is important for those committed to game preservation to recognise these stoppages [...] because stopping work on a game is often the first step in its complete disappearance". Preserving unpublished games is, therefore, writing a history that never was, one that perhaps shaped the history that is. This seems to be the motivation of the fans that do so, often without considering if the games themselves were going to be good or bad, commercially successful or otherwise.

The challenge of preserving unfinished games is great: unless one has access to the studio assets, the game itself is impossible to obtain. Typically, what can be preserved are screen captures and videos of the prototypes and promotional material. In this regard, media texts (news, interviews, previews) become the only source of information about these works. This is what they do in Unseen64.com, a website which started in Italy in 1999 which is dedicated to "cancelled, beta and unseen videogames" made "for beta-fans by beta-fans". Unseen64 frames itself in the field of "Gaming Philology", which is described as "the study of games and their history", including "elements of gaming criticism [and] trying to reconstruct developers' original concept based on beta versions, prototypes and early media released". The fans at Unseen64 claim to use Google as their main research tool and accept contributions: the site has a Forum button that links to their Facebook group (currently, 239 members), and announces that "everyone can contribute to the archive for the preservation of the history and changes in video game development".

Although Unseen64 is a collaborative database, there is an effort to distance it from amateur practice and an awareness of its potential impact on the writing of gaming history: it affirms that its goal is "to save some documents of this evolution for curiosity, historic and artistic preservation". Whether it is a beta or a cancelled game, Unseen64 tries to document the process of a game's creation, covering different stages of development (concept art, design documents, pitch presentations, prototypes, alphas, betas, demos, unused assets). It seems to value the creative process and not only the resulting object. For the managers of Unseen64, "a game that was never released has a special aura that no other released game will ever be able to achieve", and their use of the word "aura" – akin to Benjamin's (2008) in writing about the work of art – is significant.

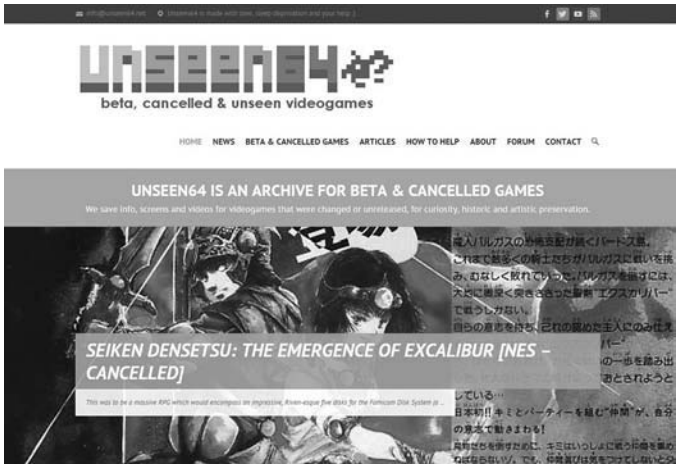

Figure 8.2 www.unseen64.net is an archive for beta and cancelled videogames, created in 2001 by a group of Italian gamers. Courtesy monokoma.

Unseen64's curation aims to be comprehensive, but personal perspective is not entirely absent: the project is described as "an archive for games that we'll never play". The creators of another website dedicated to unreleased games, GamesThatWerent.com, also explain that they often "thought how these games would be like to actually play" and set out to create a wide archive with not only information about the games, but the games themselves (as emulated ROMs). They go one step further than Unseen64 and seek to also include the experience of playing, specifically two well-known works that were never finished but found their way to fans as playable pieces: *Sonic X-Treme* and *Sonic Crackers,* of the *Sonic the Hedgehog* franchise.

Sonic Crackers is a prototype which tested mechanics that were later implemented in *Knuckles Chaotix* (Sonic Team, 1995). The ROM was made available by some unknown source and can now be played with the use of Sega Genesis/MegaDrive emulators, thus becoming part of the history of the character and the studio. Whereas *Crackers* was discovered after its abandonment, *Sonic X-Treme* (a 3-dimensional platforming game for the Sega Saturn intended for a 1996 release) was publicised and discussed by Sega and then abandoned in 1997. Early in 2015, a build of the game was leaked in the SonicRetro forums. A user called JollyRoger was credited with porting it to Windows. User A (SonicRetro forums, 2015) explained that "this is the real *Sonic X-treme* […] This is a restoration project meant for preserving historical accuracy as closely to how it was found as possible".

Figure 8.3 Screenshot of leaked *Sonic X-treme* engine test, running on emulator Cassini.

Source: https://en.wikipedia.org/wiki/Sonic_X-treme#/media/File:Sonic_X-treme_engine_test_screenshot.png

The case of *Sonic X-Treme* needs to be understood with regard to how "the original" was meant to be played. Before the leak, *Sonic X-Treme* was already part of gaming history, not as a game but as a promise. That, for fans, was not enough. By recovering it and making it playable, they are resisting the decision of the industry to cancel it, acting as "insiders" (the leak later made it into professional media), and (partially) filling the gaps of their personal histories. User A writes: "I Don't know about you guys but for me personally, the past 19 years has been a very long wait to be able to play this game". For him, playing the game is like correcting history.

When uncovering and recovering the history that never was, fans are resisting industry decisions in a complex way. The relationship of sites like Unseen64 or GamesThatWerent.com with the establishment is both one of dependence and mistrust. Unseen64 claims that it looks for "sources that were close to projects; former employees, artists, etc". and even have a "call for developers" in their main page. It offers developers privacy and anonymity and is aware of the copyright problems its database can face, so it claims that "articles are published in good faith and fair use", linking each of these two concepts to its Wikipedia entry. From this, we can infer the curators see the industry and the developers as different agents, believe that the first do not want the creation process

to be public and suspect the industry can act against them and the developers who collaborate with them. It also appears that they believe cancellations are often caused by industrial reasons, not because of quality. For these fan communities, their curating is, in no small measure, an act of resistance against the industry and its control over production and history.

"Flopped" Games and Systems

The third and final type of failure that fans preserve are games with low sales, popularly called "flops". If a game (or a system) does not sell according to the company needs and estimations, there is a high chance that it will be left behind or remembered only as an anecdote. Fans often try to keep these games relevant with forums, wikis, Let's Plays, and similar practices, and sometimes go beyond that with the practice of fan remakes and patches that keep the games playable on current technology. Sometimes fan activity can lead to a second opportunity for these games: as we have seen, the industry embraces the idea of a "classic" if a work achieves enough demand and there are prospects for its economic exploitation via a re-release or a sequel, as has happened with *Nier* (Cavia 2010), *Deadly Premonition* (Access Games 2010), *Psychonauts* (Double Fine Productions 2005), *Beyond Good & Evil* (Ubisoft Montpellier 2003), *Ôkami* (Clover Studio 2006), *Shenmue* (Sega AM2 1999) and *Grim Fandango* (LucasArts, 1998). In this respect, fans have a certain power to make the industry preserve and revive the works and intellectual properties they enjoy.

Officially sanctioned re-releases clash with the purist notion of "the original experience", since they often bring changes to the original work, be it to improve it technically (better resolution, higher textures), to avoid copyright issues (new voice acting, as in *Silent Hill HD Collection*, Konami 2012), or to add new content (as in *Metal Gear Solid 3: Subsistance,* Konami 2005). This highlights the idealisation of an "original experience" that, as Swalwell (2013) notes, is rarely, if ever, retrievable, even when playing the original game in the original hardware in the present, because there is a different context and a different 'us' ("we have changed"). The original can only be remembered, never fully recreated.

Failed systems are even more problematic to preserve and experience. First, game consoles tend to have notable differences in their control methods, technology, and displays, so it is unlikely that their experiences can be fully recreated in another system. Second, they are harder to find, since they sell poorly and become rare: if they are preserved, it is as pieces in a private collection. But one does not need to own these platforms to get a grasp of them, thanks to emulators, or to learn more about them, thanks to online fan communities such as PlanetVB, dedicated to Nintendo Virtual Boy, the company's worst selling system ever.

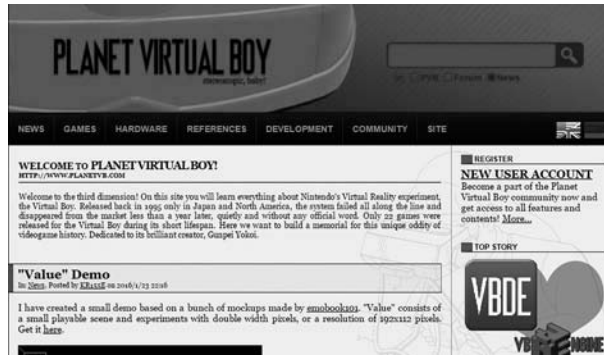

Figure 8.4 Front page of *Planet Virtual Boy* (http:www.planetvb.com). Christian Radke.

The Virtual Boy debuted at the Shoshinkai show in 1994 and had a negative reception from that moment on (McFerran, 2010). It was released in 1995 and, after shipping 770,000 units (StatisticBrain.com, 2014), Nintendo discontinued it. Only 22 games were released for the system. PlanetVB started in 2000, four years after the console's abandonment. It has, as explained in the site, "documentation of the Virtual Boy, its games and history", including a list of every released and unreleased game, aiming to "offer Virtual Boy fans, collectors and developers a platform about their passion". So far, the site has 2538 active users, all of them categorised in a database that details factors such as percentage of completion of their collections (with optional pictures), homebrew projects, high scores and game ratings. Collectors have a Marketplace in the forum, whereas individual game entries display their rarity level, which augments their "aura" amongst fans.

This shrine to the Virtual Boy accommodates both lovers of the original object and users of emulators, accepting what Swalwell (2013, 7) calls "degrees of fidelity" in preservation. As a third branch of its dedication to the console, PlanetVB also supports the development of new games for it. Two sub-forums are dedicated to homebrew (games created by fans) development, and so far the homebrew section archives 23 games. PlanetVB also provides information on FlashBoy, a flash cartridge used to play hacked ROMs and homebrew games in an original Virtual Boy. Pérez-Gómez (2009, 232) writes about the development of "retrogaming original games" as part of the retro-gaming fan practice. This is part of the fan development practice mentioned before, along with fan remakes, mods, and patches. In the case of PlanetVB, these new games could be seen as a way of keeping the platform, its unique technology and fan vernacular culture alive, giving these opportunities that were denied by the industry.

Fan sites like PlanetVB.com, fkinthecoffee.com (a fansite of *Deadly Premonition*) and nier.wikia.com (a wiki dedicated to the cult game *Nier*) can keep a game or a system alive even when only a few players bought it and the industry seems to have abandoned it. But the work of the fans at PlanetVB goes beyond mere cult: they are praising a system that sold poorly and that is generally remembered as "bad". The Virtual Boy is often included in the kusoge culture, but PlanetVB was created out of honest admiration, not enjoyment of its bad design. At the same time, fans are creating new material for the system, bringing it to the present as a niche but valid platform for gaming. Keeping the Virtual Boy alive, both as an object and as a gaming concept, is an act of resistance that creates a space separated from the industry in which fans can shape their heritage and personal history.

Conclusions: Failure as History and Fans as Resistance

In this chapter, I have offered a general view of the preservation of failed works that show the heterogeneity of fans and their practices. There is no single type or methodology of fan preservation, the same way there is no single "fan" profile. What they all seem to share, to some extent, is a nostalgia for the past, a resistance to official history, some sense of privilege in knowledge about rare history and videogame form, a love for the original object, a need to express their opinions and interests and an appetite for entertainment.

The fan curation of failed texts can be useful for scholars in four ways: as a challenge to (and expansion of) the vague idea of "classic"; as resistance against established agents; as sources; and as objects of study themselves.

Whilst the concept of "classic" does not have a unanimously agreed upon definition, it's always used to lend prestige. We have seen that games can fail in their design ("bad"), during their production (unreleased), or commercially ("flops"), and still be considered worthy of preservation by fans. They can be appreciated as works to be played, for their historic contribution to the medium, or even as sources of ironic enjoyment. "Flopped" games are the closest to the idea of "classics" as excellent, timeless works, whereas "kosuge" games are on the other end of the quality spectrum: they are turned into entertainment precisely for how bad they are. The curation of unreleased games is a task of completionism and imagination, putting together the pieces that never formed a full game but that are understood as part of gaming's evolution. What the three forms of failures show is not that "classic" is an inadequate term, but that it is a flexible one: worthiness can come from many aspects of a game, and a work can contribute to the medium without being universally acknowledged as excellent.

Second, by curating these failures, fans are resisting the official historiography of the medium as well as the adjudication of cultural

status. They may feel the establishment has overlooked a "flopped" game, or that the industry abandoned a worthy one before release, or that there are different merits in some "bad" games. Preserving works that exist only at the margins of history is a form of appropriation by the users, a resistance to official historiography that aspires to redefine fans' heritage. By defending these failures, fans are turning these works into a sort of cultural capital – as content, as physical objects, and as knowledge about them – which resists more widespread notions of cultural elitism and privilege. Fans are redefining the canon and the form of the medium, as well as the rules one has to internalise to decipher and appreciate it.

Third, fan curating can provide scholars with useful data. Although these practices are frequently semi-organised at best, with changeable and inconstant structures, and no hierarchy or methodology, the information they gather can be of great value if properly managed, problematised and viewed from a critical perspective. Fans of failure act as scouts, intermediaries and subjects of a history that is often overlooked by mainstream gaming culture and academia. They are mining raw materials for historians to process, paving the way for a history of failure that is as much needed as the official history of success. Failure is an important part of history, not only because it gives us a better understanding of the platforms and works that prevailed, but because culture is formed by failures as well as by triumphs.

Last, fan productions are also of value for historians. Newman (2011, 109), for example, encourages "a consideration of the uses of non-interactive audiovisual and (para)textual materials in game preservation activity", referring to player-produced walkthrough texts. The same could be applied to reviews (even comedic ones as the AVGN's), Let's Plays, or wikis, since they not only show an experience of play but a relationship with the work. Small or big, these products are autonomous parts of gaming culture and subcultures in their own right. The products and practices of fans paint a much wider and richer picture of gaming culture and its trends, tensions and contradictions.

Note

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9 World –1

Glitching, Codemining and Procedural Level Creation in *Super Mario Bros.*[1]

James Newman

World 1–1: In the Beginning

Super Mario Bros. (*SMB*) is one of the best-selling videogames with more than 40 million copies sold (Nintendo 2015a). Released in 1985 (the exact date is unknown as Cifaldi (2012) notes), the game was key in rebuilding the videogames marketplace following the U.S. market 'crash'[2]. *SMB*'s popularity drove sales of its host console, the Nintendo Entertainment System (NES, aka Famicom in Japan), in much the same way *Tetris* would later go on to do with Nintendo's GameBoy (Evans & Hagiu 2008).

In the 30 years since its first release, *SMB* has been almost universally lauded for the inventiveness of its audiovisual, level and interaction design. It has been canonised as the epitome of game design perfection (Emmons 2014) and continues to provide inspiration for developers (see McMillen & Refenes (2011) on its influence on the Xbox Live Arcade title *Super Meat Boy*, for instance). And, although Nintendo remains comparatively tight-lipped about development practice (see Altice 2015; Parish 2015; Sheff 1993), the drip-feeding of insights into *SMB*'s creation serves to reinforce the care and attention lavished upon the placement, appearance and motion of items from the opening seconds of the game's first level through to its conclusion (see Eurogamer 2015; Gifford 2010; Iwata Asks n.d.).

As such, eschewing an analysis of the decisions that inform this 'masterclass in level design' (Emmons 2014) to focus on the 'World –1' (aka 'The Minus World') might seem odd. After all, World –1 is a level comprising a garbled incongruous mix of graphics, sound and gameplay with none of the subtlety or trademark design cues identifiable elsewhere in the game. Uniquely, it is also fiendishly difficult to access, requiring expert knowledge and a mastery of counterintuitive techniques. Moreover, to enter is to surrender to certain death – not because the level is especially challenging but rather because it is an endless loop with no exit save for sacrificing one's lives or, more decisively, resetting the console.

On the face of it, the effort involved in getting to World –1 significantly outweighs the benefit of the visit. However, only considering the playable potential of this inescapable level misses the point. Since the

1980s, World –1 has been an object of fascination and enquiry among fans and remains the site of investigations deploying ever-more sophisticated game analysis tools. Indeed, the importance of fans to the story of World –1 is hard to overstate because without the revelation and codification of specific actions and performances of play, World –1 would not, in fact *could not*, exist.

This might make World –1 sound like the outcome of a *SMB* level design competition or a prototype of 2015's *Super Mario Maker*, but it is neither. In fact, World –1 cannot truly be said to have been designed by anybody whether Nintendo employee or fan as, while its audiovisual and gameplay elements are drawn from the game's repository, the level is actually procedurally generated through unintended interactions in *SMB*'s code. Despite its limited play potential, the opacity and complexity of the techniques required to access it, and even the knowledge of its existence, construct World –1 as a marker distinguishing the expert fan from even the accomplished player. However, although it remains deeply embedded within gaming culture, the removal of the glitch from some, though not all, re-releases of *SMB* speaks to Nintendo's ambivalent relationship with World –1 and makes accessing it contingent on the availability of specific versions of the game.

As such, World –1 encourages players to encounter *SMB* not as a static ludic entity (albeit one with exploitable inconsistencies) but as a game evolving over three decades. By foregrounding *SMB*'s 'instability' (Newman 2012a) as well as its status as an object of (celebrated and flawed) design, I argue that World –1 demands that players reconfigure themselves as researchers, engineers and, above all, fans, to theorise, speculate upon and decompile its operation. By exploring World –1 beyond the 'surface' level of (expert) play, the detailed practices and performances of fandom that take place around and even inside the code and data structures of the program allow the contours of *SMB* as a complex historical, digital and cultural object to be fully apprehended.

Although it is referenced in other games and tacitly recognised (if only through its removal in some re-releases), Nintendo offers no technical insight or instruction on World –1. As such, we are reminded of the importance of fans and players as historians and archivists of gameplay (see Newman 2008, 2012b). Accordingly, the reading(s) offered in this chapter are greatly informed by these amateur investigations alongside three decades of my own (expert and inexpert) playing.

World 1–2: Pipes and Coin Palaces

Although World –1 is not a 'hidden level' designed to be unearthed by curious players, an investigation of *SMB*'s myriad secrets is vital as they are key to the glitch's revelation and reception. Of course, secrets and 'Easter Eggs' predate *SMB*. Warren Robinett programmed a room in the Atari

VCS game *Adventure* (1979) that contained text crediting himself as the game's designer, whereas Namco's *Pac-Land* (1984) gave power-ups to players who thoroughly explored every aspect of the environment. Pushing seemingly immovable objects like fire hydrants and cacti brings bonus points and warps allowing non-contiguous traversal of the game's terrain. Following this trend, *SMB* brims with areas accessed in both well-signposted and decidedly counterintuitive ways.

For example, after the bright blue sky, cheery clouds and sunshine of *SMB*'s opening level, World 1–2 literally drops the player into the darkness of the underground. Down below, the bold, primary colours characteristic of Mario's world are replaced with a blueish tinge. Hitherto unseen species of creatures and a new variety of automatically moving 'elevator' platform add a markedly different tempo, even urgency, to Mario's jumps (as well as referring to an earlier outing in 1981's *Donkey Kong*). However, notwithstanding these differences between Worlds 1–1 and 1–2, much remains constant. World 1–2 is still rooted in the platforming mechanic introduced in the previous stage. The screen scrolls from right to left as Mario moves towards the final destination of the flagpole (located above ground to provide spatial contiguity with 1–3). Platforms are solid while the spaces between them lead to bottomless pits. Save for those deadly gaps, the entire level is 'framed' by a brickwork floor and ceiling demarcating the playable space from the interface chrome of score, timer, number of Marios remaining and level designator. As well as adding complexity, the elevators reinforce the brickwork's more literal frame by threatening to drag Mario to the nether. The equation is simple: out of the frame equals death.

Except when it doesn't. If Mario is left unattended on an 'up' elevator, he eventually hits an invisible extension of the ceiling and is dropped back to the next rising platform – unharmed. More pointedly, slipping down one of Mario's trademark green pipes that nod to his and his brother Luigi's plumbing business, reveals a world that extends beyond the game's carefully drawn (and sometimes invisible), screen-high frame. Secret rooms full of collectible coins (so-called 'Coin Palaces') sit at the end of (some of) this interconnecting pipework rewarding the inquisitive player. Of course, not all pipes lead to treasure and most cannot be entered. However, there is no way of establishing this without attempting to enter whereupon either glitter and riches abound or the reward is the ignominious sight of Mario bobbing up and down atop an impassable structure. The incentive to reveal demonstrably present secrets and, simultaneously, avoid revealing one's lack of knowledge of the game's terrain and potential, adds to the need for thorough exploration and replay.

> …so many hidden coins and power-ups, so many enemies and dangers, so many secrets! This wasn't a simulation; it was a world to get lost in, as replay able as a favourite book or movie or album

> … Everyone played it as [world champion videogame player] Billy Mitchell did, trying to wring the computer chip of every last secret.
> (Ryan 2012: 75)

Crucially, the plethora of secrets cannot be revealed in a single playthrough even by the most adept of players. This is not because there are so many or even because to reveal them all requires a consistency of skilful performance, but rather because the way that space is produced and consumed in the game makes many secrets mutually exclusive. As we noted previously, Mario's movement through the Worlds is broadly unidirectional. By running from left to right, new obstacles come into view and new space is revealed. However, it is essential to note that, once those obstacles and structures scroll off the leftmost edge of the screen, they cannot be reinstated. There is no running back to re-explore space that has scrolled beyond the additional frame of the monitor/TV. In *SMB*, space is irretrievably consumed through the acts of running and jumping and may only be revisited, re-produced and replayed by means of re-entering the level by dying and/or restarting.

World 1–3: Level Complete!

Earlier, we noted that World 1–2 largely takes place underground but is topped and tailed by overground sequences that see Mario leave and arrive at subsequent castles. If there is such a thing as a 'preferred' route through a videogame level, 1–2's takes Mario through an initial pipe, down into the underground, and (potentially via some detours), through the 'end of level' pipe at the right-hand extremity of the cavern. Back in the light, the customary flagpole and castle bring this chapter to a close. And just as World 1–2 followed 1–1, with a reassuring linearity, exiting 1–2 in this manner leads to 1–3. The sequentiality of level designations confirms this route and simultaneously underlines and is underlined by the game's spatiality. The pipes connecting overground to underground form a contiguous link, just like the pipe revealing 1–2's Coin Palace. Indeed, the overground 'pre-roll' animation that immediately precedes Mario dropping into 1–2's darkness makes an explicit connection between Worlds 1–1 and 1–2. And, if this was insufficient, at the end of 1–2 there is a solid, screen-height wall behind the exit pipe that appears to unequivocally mark the boundary of explorable space.

There is, however, another exit from World 1–2 – one that does not respect the linearity of the level structure and which markedly alters the parameters of the game's spatiality. Part way through World 1–2, Mario is able to dislodge a '1-Up Mushroom' hidden inside an otherwise unremarkable block forming part of the ceiling. That it is hidden rather than signposted in a 'Question Mark' block is notable, but its behaviour upon revelation is yet more significant. Once released, the Mushroom lands

on top of the ceiling blocks, whereupon it skids along mingling with the interface chrome previously coded as beyond the game's playable space. The player can track the fungi's progress to what transpires to be a carefully positioned gap in the ceiling through which it falls bestowing the extra life. It is not an inconsequential achievement to discover and execute the manoeuvre, but the real importance of the encounter is the glimpse into a facet of the game's spatiality that confounds and even subverts what has been learned previously. That the 1-Up Mushroom is so well-hidden means that not all players will find it – and, notwithstanding the use of a strategy guide – it is likely discovered either by accident or after a systematic head-banging tour of every brick in the wall (that the game's design encourages, as already noted). However, for those that encounter it, it suggests an imaginative, and perhaps literal, leap out of the frame.

World 4–1: Welcome to Warp Zone!

The appearance of the 1-Up Mushroom in the middle of World 1–2 transforms the potential function and operation of the ceiling blocks. Until that point, the ceiling was clearly and unproblematically coded as the upper boundary of the navigable ludic space. And, although the Mushroom scuttling along the top does nothing to affect the permeability of the ceiling, it does recast it as a new floor – if only Mario could get up there. In fact, the very point where the Mushroom drops holds the key: the elevators.

Towards the end of the level, two further sets of elevators await. Positioned immediately before the exit pipe that leads aboveground and on to World 1–3 the first set descends while the second rises. The elevators span a ravine too great to jump unaided and their opposing motion combined with the ever-ticking game timer, naturally leads the player's eye across to the safety of *terra firma* and the exit pipe. However, a gap in the brickwork ceiling above the second elevator means that a well-timed jump allows Mario to leap out of the frame. Landing on top of the ceiling – which now becomes a floor just as it did for the 1-Up Mushroom. From this position, Mario can run past the exit pipe (disrupting its spatial integrity in the process), along the top of the vertical wall of impermeable bricks putatively denoting the end of level, to arrive in a wholly new room.

This new room is one of *SMB*'s three 'Warp Zones'. Otherwise empty spaces, they contain three pipes each granting non-linear access to later Worlds. In the Warp Zone in (or beyond) World 1–2, three pipes lead to Worlds 2–1, 3–1 or 4–1. By following these warps, the player can sidestep large parts of the game and gain access to stages they might not encounter (as the otherwise linear structure of the game relies on expertise and skill in execution to progress)[3].

For the player, *SMB*'s Warp Zone(s) confirm the need to explore and test the boundaries of even what the game model appears to elsewhere normalise. In fact, what soon becomes normalised is the investigation of every block and the scrutiny of the way the game appears to structure and guide player behaviour and performance. Just as *Pac-Land* confirmed that the 'unpushable' should be pushed, so too *SMB* encourages the player to think and jump outside the box – the very box the game's spatiality constructs. *SMB*'s design creates the setting for a treasure hunt, but its triumph is better expressed in the way it manifestly creates the desire to undertake one. The 1-Up concealed in a plain block suggests the potential merit of hitting every block, ducking into every pipe, jumping at – or over – every wall, because there are secrets scattered throughout the game and even apparently outside its boundaries.

World –1: The Minus World

Even though they might involve high levels of skill or happenstance in their revelation and their result might be to recast the spatial logic of the game itself, like Robinett's 'credits room' in *Adventure*, *SMB*'s Warp Zones and power-ups are clearly designed to be found. World 1–2 holds a further secret, however. There is another exit from the level but this route requires the manipulation of in-game behaviours and the reconstitution of the Warp Zone and its discontiguous World-select pipes. Key to this is the means by which the Warp Zone is entered. Instead of using the 'out of the frame' route over the top of the end-of-level pipe, accessing the third exit requires the player to pass through the pipe and the solid wall behind it. To be clear, this does mean entering the pipe through its aperture, but instead running at it, jumping and, like Harry Potter at Platform 9 3/4 on Kings Cross Station, passing cleanly and elegantly through it to appear on the other side.

If this sounds impossible, then it was certainly intended to be. It is, however, perfectly achievable, albeit difficult. Ordinarily, jumping at the pipe achieves nothing and the game's collision system simply returns Mario to the ground. It is a solid object, after all, and even the recasting of the game's frame did not affect the permeability of the structures involved. However, by positioning Mario in the right spot and jumping at a specific height, angle and speed, it is possible for the character to glide through the solid pipe and brickwork dropping majestically into the Warp Zone. By entering the Warp Zone in this altogether unintended manner, the pipe's destinations are altered. Where once the pipe on the left led to '4–1', it is now the conduit to World –1; a location that is both familiar and unfamiliar. We will temporarily set aside the technical explanation for this feat of ghost-like translocation in order to concentrate on its playable outcome.

World –1 is an underwater stage whose underlying layout and geography, including the position of enemy creatures, are identical to level 7–2 (which is not an underwater level). World –1 is 'endless' and impossible to complete. Battling through the obstacles and swimming through the 'exit' pipe at the right-hand extremity of the level simply results in Mario being unceremoniously dropped back at the beginning of the level *ad infinitum*. Being defeated by the enemies, running out of time or cycling the power on the console are the only ways to exit World –1. It cannot be escaped victoriously through even the most expert play.

Unlike the Warp Zone in its standard incarnation allowing access to Worlds 2–1, 3–1 and 4–1, or the 1-Up Mushroom hidden in the ceiling block, World –1 was not explicitly designed to be part of the game. Indeed, it was not designed at all in the sense that the particular combination of elements that constitute the level were never conceived of by designers Shigeru Miyamoto or Takashi Tezuka as existing in that configuration. Nor is World –1 an abandoned level or a 'debug area' still accessible in the final version of the game. Such levels are not uncommon in commercially released games and I have written elsewhere about the 'palimpsests' of graphics, sound and layout elements that investigative fans have located within released game code and that prompt rich speculation about paths taken and not taken during development (see Newman 2008 for more on the *Sonic 2 beta* community, for instance).

Unlike the work on the *Sonic 2 beta*, accessing *SMB*'s World –1 involves no codemining or hacking (although subsequent investigations into the operation of the glitch may make use of such tools and techniques). World –1 is brought into existence using the standard repertoire of moves available to any player of the game as released in 1985 (albeit requiring expert execution). This is key because, requiring no special tools, accessing World –1 has been demonstrably possible since the initial launch of *SMB*. However, although precisely when the glitch was first performed is not presently recorded, we see its presence documented in the gaming press several years after the game's release. For all the encouragement to explore, *SMB* certainly seems to have held this secret for some time – and not just from its fans but also its developers.

World 9? Garbage

Fan responses to World –1 can be usefully separated into two distinct categories. First, there is what we might call a 'surface' or 'outcome-oriented' approach concerned primarily with interrogating the game and its simulation model by observing the impact of specific sets of inputs on the behaviour of the outputs. There is very often a theoretical or speculative dimension to this approach that seeks to imagine the reasons for such behaviour as well as the possibility of this observable behaviour being more generalisable, operable elsewhere or constituting part of larger,

yet-to-be-revealed systems. Second, there is what we might term a 'technical' analysis in which fans harness tools to look beyond or 'behind' the observable surface of the game. By delving into the code structure, this approach seeks to apprehend and interrogate the flows of data within the simulation model. The objective here is to precisely understand what is happening 'under the hood' of the game and to be able to explain why particular combinations of inputs into the system result in specific patterns or sequences of outputs. I should be clear here that my use of the term 'surface' is in no way pejorative or synonymous with 'superficial'. These two approaches harness different toolsets and deploy different methods in their quest to answer what remain similar questions about the functioning and scope of World –1 glitch. Indeed, we might argue that they broadly map to (con)textual and systemic approaches to Game Studies in much the manner outlined by Mateas (2003) and others, for instance.

Although the earliest performance of the World –1 glitch is not recorded, its existence was documented in 1988 in a *Nintendo Power Magazine* feature attributed to the enigmatic 'Agent 826' and offering details of a 'mysterious secret'.

> Of course you know about Worlds 1–1 through 8–4 in Super Mario Bros., but did you know that there is a World –1 as well? It's an endless water world from which no one has ever escaped.
>
> (Agent 826, 1988: 55)

The piece describes the basic steps needed to execute the 'pipe glitch' and is accompanied by four thumbnail images with captions spelling out the technique.

1 Break the 2nd and 3rd bricks from the pipe at the end of 1–2
2 After many tries, Mario may be able to go through the wall
3 Quickly, go into the left or right pipe to get to –1
4 Look at the above scores! There it is: World –1!!

(Agent 826, 1988: 55)

As we can see from the second caption, there is not much certainty or precision in the instructions here – and not much to instill confidence that this is even possible. The twin qualifiers in the second caption's instruction ('after many tries', Mario 'may' be able) underline just how difficult it is to successfully perform the glitch even when its existence and the basic tactic is known. Incidentally, the action set out in the first caption is not wholly necessary and is intended to aid by steering Mario towards the right hit point on the exit pipe. It is, as is painfully evident from this description, far from foolproof even with additional assistance.

Whether or not players were able to perform the glitch with any degree of repeatable success is perhaps less important than the revelation that

the glitch exists and, more importantly, that there exists an entirely new World in *SMB*. Perhaps spurred on by the clustering of *SMB*'s levels into groups, or Worlds, of four (1–1 to 1–4 through 8–1 to 8–4), fans soon begin to discuss the possibility that World –1 was not a one-off. As Clyde Mandelin's (aka 'MatoTree') fastidiously well-researched 'Minus World' website attests, this discourse with its discussion of 'confirmed sightings' of other Minus Worlds and even an entire World 9 became sufficiently widespread to attract the attentions of Nintendo.

> Things got crazy enough that Family Computer Magazine ran a big article in which Shigeru Miyamoto, creator of *Super Mario Bros.*, had to say that this "World 9"-related stuff was just the result of random garbage data and that no secret levels were ever created. He said he found all the commotion so interesting that he decided to add a genuine secret "World 9" in the sequel, *Super Mario Bros. 2*.
> (Mandelin n.d.)

That *SMB 2* (released under the name *Super Mario Bros: The Lost Levels* outside Japan) included a 'World 9' as a homage to the fan furore is notable in being one of Nintendo's few positive nods to the existence of World –1. In *SMB2*, World 9 is described as a 'Fantasy World' directly referencing the speculation of the fans that breathed life into the expanded World –1 myth. Moreover, and further cementing the link back to the original *SMB*, the first two levels of World 9 appear as flooded overland worlds thereby jumbling the layout, audiovisual and play mechanics in a manner clearly citing the original World –1, although this time the design is most definitely intentional. However, for all the playfulness of the sequel, Nintendo's position remained clear. There is no World 9 in *SMB* and anything outside Worlds 1–1 through 8–4 was the unintended result of the game loading 'garbage data'. Disappointing for those hoping to find a new collection of stages, perhaps, but as one pipe closes…

World 36–1: Mining the Minus code

We have seen that accessing the Warp Zone in World 1–2 'through' the wall rather than via the intended route alters the operation of the pipes therein and, as Miyamoto's disclosure in *Famitsu* reveals (Mandelin n.d.), this alteration was not intended. The discussion in *Nintendo Power Magazine* highlights the suspicion that it is the means of accessing the Warp Zone that is responsible for this data corruption. However, the mechanism is not discernible from the surface features of gameplay. The techniques can be tested, repeated and codified but the explanation of their functionality is unforthcoming without reference to the game code itself.

To understand why the data becomes corrupted in the Warp Zone we must turn to more technical analyses as employed by a second group of fans and reverse engineers.

By taking advantage of emulation tools and the availability of the game's code as a ROM file, videogame 'codeminers' are able to probe the program code, watching specific registers in memory and monitoring dataflows in response to strings of inputs. Code monitors and emulators allow the technically minded investigator to scour the code to discern its operation and look for other clues (like the palimpsests uncovered by the *Sonic 2 beta* fans, noted previously). Additionally, the ability to save states, rewind and refine performances all while interrogating the contents of memory, affords the investigator an extraordinary level of control over the execution of play that need not be affected by the imprecision of human ability and skill. In addition to harnessing (and sometimes even developing) these software analysis and hardware emulation tools, at the heart of this approach is an interest in the game not so much as a representational but rather as an algorithmic system. The Tool-Assisted Speedrun website TASVideos.com provides particularly detailed information on a number of glitches including the 'wall ejection' routine that enables Mario to glide through the exit pipe and solid wall that should block entry into the Warp Zone.

> Wall-ejection is SMB's mechanism to push Mario out of a wall when he entered it partially. The game ejects Mario towards the opposite of his steering. To perform a walljump, three things are required:
>
> - Some horizontal speed towards the wall (facing right: X speed > 16, facing left: X speed < 240)
> - Mario's feet must hit the wall at a block boundary (every 16 pixels)
> - Some luck to make Mario go into the wall a little bit (at least for 1 pixel)
> - It's possible to perform walljump from any non-lethal solid material (bricks, pipes, etc.)
>
> (Walljump n.d.)

The ability to enter the Warp Zone through the wall is found to be a vagary of *SMB*'s collision detection routine which can be exploited so as to 'eject' Mario into a part of the game world that should be out of bounds. Thinking back to the *Nintendo Power Magazine* article we saw above, the somewhat less-than-optimistic tone in the instructions on performing the World –1 glitch jump is hardly surprising. The technical description of the operation of the system sheds a wholly new light on the performance that has been successfully executed by countless players and attempted by many more.

It is also through fans' technical analyses that further light is shed on the operation of the glitch and the reason for the generation of 'garbage data'. Ordinarily, when Mario drops into the Warp Zone via the route

'above' the game's frame, an invisible object is activated as it scrolls on-screen triggering the loading of the Warp Pipe data. When the player accesses the Warp Zone through the wall using the 'wall ejection' glitch, the invisible object does not (necessarily) scroll into place and therefore the sequence loading the data for the pipes is not initiated. The qualifier 'necessarily' is important here as it is still possible for the player to scroll the invisible object on screen thereby initialising the pipe data and returning the Warp Zone to its 'normal' state. To ensure that the correct data is not loaded and the World –1 warp remains possible, it is essential that the Warp Zone room is not fully drawn on-screen. By keeping at least the far right-hand wall off-screen, the invisible object remains unactivated. If we think back to the *Nintendo Power Magazine* instructions, the imperative to act quickly after the wall ejection is revealed to be a, perhaps understandably, panicky reaction. Notwithstanding the ever-present countdown timer, there is no time pressure on the player to leap into the pipes as this is a spatial rather than temporal trigger. Even with all these precautions taken, the player should also be aware that, of the three warp pipes, only left and right lead to World –1 with the centre leading to World 5–1.

As for the mysterious '–1' sobriquet, 'Deconstructing the Minus World' (smcgamer 2010) points to the operation of the game's tiles (the graphical elements that comprise the visual system).

> All the tiles in the game are loaded at startup into the Picture Processing Unit, or PPU. The PPU can store 255 tiles in memory at once, and they are addressed from 00-FF (hexadecimal). The developers intentionally placed the number tiles 0–9 in slots 00–09. This allows the Warp Zones to lead to their location via the tile number situated above the pipe.
>
> A blank tile is needed in all sprite-based video games, to allow for spacing between other sprites. For example, the spaces in Toad's message in each castle are the blank tile. Empty spaces between the ground and the clouds are also the blank tile. This tile is numbered 36 (24 hex).
>
> (smcgamer 2010)

The 'garbage data' loaded into two outer warp pipes actually requests the non-existent World '36–1' but since tile 36 is a blank, the game title card displays ' –1' (note the leading space). So, not a Minus World at all, but rather a call made to a World that doesn't exist that just happens to generate a playable level (after a fashion). The call was just as likely to crash the game but just so happens to call data in a way that procedurally generates a viable, if *prima facie* unexceptional, level (Figure 9.1).

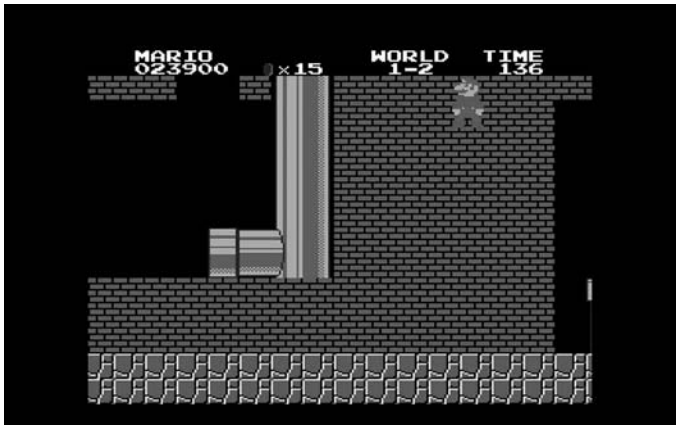

Figure 9.1 Entering the 'Warp Zone' in World 1–2 by glitching through the wall causes a data corruption that procedurally generates the Minus World level.
Source: *Super Mario Bros*. (World 1–2). Nintendo (Nintendo Entertainment System), 1985.

World 256: Minus Worlds

Excepting a brief sojourn into the speculation about a World 9, throughout this chapter, discussion has centred on World –1. This is, at least in part, because, the focus has been on the U.S./European NES console and the associated territorial releases of *SMB*. However, were we to shift our attentions to the Japanese *SMB* cartridge and Famicom system, the picture would be rather different. Recalling the claims made in *Famitsu* that an entire raft of 'Minus Worlds' had been discovered, we find they were perhaps rather rashly dismissed. By using some truly ingenious – and potentially system-damaging techniques – a full 256 'Minus World' levels have been discovered in the Famicom version of *SMB*. The technique is as inventive as it is unlikely:

> The trick is this:
>
> - Get a Super Mario Bros. cartridge and a Tennis cartridge
> - Insert the Mario cartridge and turn the system on
> - Remove the cartridge while the system is still on
> - Insert the Tennis cartridge with the system still on, then reset
> - Play the game – toss the ball twice, serve, and then walk around
> - Remove the Tennis cartridge with the power still on
> - Insert the Mario cartridge again and reset the game
> - Use the "continue code" by holding the A Button and pressing Start
> - If you did everything right, you should start in a new world

> - The world you start at depends on the number of steps you took while playing Tennis – for each step you take in Tennis, you go up one world in Mario.
>
> (Mandelin n.d.)

Again, we see an extraordinary dedication to probing the extremities of ludic possibility in the actions of fans devising and refining strategies that not only push beyond the frame or code of *SMB* but also operate across the boundaries of otherwise discrete cartridges. There is a technical savvy that both describes and explains the manifest behaviour in terms of code sharing in early Famicom titles and the fact that performing a reset with the 'Continue Code' does not flush the registers that happen to relate to level generation in *SMB*. By arbitrarily manipulating the values of these registers by taking steps in *Tennis*, *SMB*'s level creation routine can be influenced in a wholly new manner.

Throughout the study of World –1, we see co-creativity writ large (see Banks 2013) though with the game designer playing a less knowing role. Because the different World –1 stages cannot truly be said to exist until conjured by fans, this investigative, playful labour is surely inadequately described as 'discovery' and far better conceived as game creation.

World 1–2 –(–1): Mario Minus the Minus World

For three decades, Nintendo has exhibited a quiet yet ambivalent attitude towards World –1. The company does not make explicit reference to World –1 in the way that it does to the 'glitch Pokemon' that have become the subject of similar fan analysis, speculation and textual production (see Newman 2008) and which are recognised as a 'programming quirk, and not a real part of the game' (Nintendo n.d.). By contrast, Nintendo's response to World –1 has been altogether more covert ensuring that it exists as a contested space retained or removed from different titles as *SMB* is released, re-released and remade across countless platforms. Technically, the glitch remains in titles that emulate the original NES/Famicom hardware and execute the original, unaltered game code and is removed in remakes (that is, a newly programmed version of the game that exhibits ostensibly the same surface-level performance and gameplay (perhaps with altered or 'updated' graphics and sounds) but that does not run the original code. As such, World –1 is accessible in the Wii, 3DS and Wii U 'Virtual Console' releases (2006–2013) but not in *Super Mario All Stars* (1993) and *Super Mario Bros. Deluxe* (1999, re-issued 2014), for instance. There is no moment at which World –1 is removed and releases in which it is available and unavailable remain simultaneously available. This situation reveals much about Nintendo's attitude to its own product, the nature of the contemporary videogame marketplace and the meaning of historical objects and technological developments,

and brings into play complex notions of authenticity, originality and perfectibility.

The continued existence of World –1 in the emulated versions of *SMB* symbolically communicates the unaltered authenticity of the release, warts and all. However, alongside this discursive production of fixity in the original, the remade titles co-opt *SMB* into the perpetual upgrade culture that Kline, Dyer-Witheford, and De Peuter (2003) identify. In the remakes, the essence of the old game is distilled and relocated in a new period or 'generation' of technologically defined gaming present/future. Most obviously, this is communicated by 'updated' or 'enhanced' graphics and sound that demonstrate the power of the new platform. *Super Mario All Stars*' box proudly proclaims that 'All the great Super Mario Bros. games have been powered up with 16-bit graphics and sound'. However, more subtly, we see the codebase itself is also updated and perfected. As I have noted in relation to another Nintendo title, *The Legend of Zelda: Ocarina of Time* and its 3-dimensional re-release (Newman 2012b), the videogame remake exists in a dialogical relationship with its progenitor both referring to and revering the status of the original while simultaneously drawing attention to the rudimentary or superseded nature of its audiovisual presentation by enhancing and updating it to 'contemporary standards'. In the case of *SMB*, at least, this updating affects not just the representational system but also the design of the underlying program.

Ultimately, what is ironic about this position is that the investigative attitude that makes possible the revelation of this imperfection in the game is fostered and elsewhere rewarded by the game's design itself. From the opening seconds of World 1–1, the game instills inquisitiveness in the player with its expanse of negative space and enticing '?' block. Moreover, the positioning of invisible blocks, hidden rooms and myriad other secrets, demands the acquisition, discussion and sharing of knowledge outside the game. In this way, *SMB* signals the importance of moving beyond one's own play and operating as a fan, embedded in gaming culture, in order to uncover the title's full extent. Critically investigating, documenting and sharing the findings of their play and immersed in the paratextual world surrounding and supporting the game, the *SMB* fan encounters the official nuggets of information from Nintendo and the guidance on strategy and ludic opportunity generated and curated by other similarly inventive and curious fans and circulating in forums, FAQs, walkthroughs and Let's Plays. What is so fascinating about the attitude to play that is engendered is that it does not distinguish between the revelation of the intentionally hidden and the unintentional error – the Easter Egg and the glitch. Both offer experiential opportunity, both are accessed through standard, if expertly performed, play. Prima facie, there is no reason to assume that the procedurally generated World –1 is unlike any other level or deviously hidden treasure. If Nintendo appears

cagey, this serves only to add to the mystique fuelling conspiratorial speculation of an even-greater 'World 9' cover-up. Even when confirmed as a glitch, World –1 possesses a cultural and symbolic value far outstripping its demonstrable lack of ludic potential.

Neither explicitly designed nor a forgotten remnant of a development process, World –1 is sometimes present in versions of the game and sometimes cleansed away. It is a (sometimes) playable level generated through the interaction of players' performances and the source code, both part of and not part of *SMB*'s geography and experiential realm. Although a glitch, it exists as a consequence of the inquisitiveness encouraged by the game itself. Its contours are mapped and its operation explained solely through the investigations of fans who, responding to the game's incorporation of secrets, share and refine their experiences and analyses. The result is the creation of a discursive space in which value is bestowed upon the glitch. As such, although it was not part of *SMB*'s formal design, World –1 unquestionably contributes to the game's meaning and history as an object of design and play. It acts as a salient reminder of the importance of players and fans not only as the co-creators of gameplay but also as the analysts and curators of (emergent and resistant) gameplay and design practice.

Notes

1 This research was supported by an Engineering and Physical Sciences Research Council Sustainable Society Network + Researcher Mobility Grant (2015).

2 Between 1983 and 1985, the U.S. console marketplace saw losses of $1.5 billion (Wolf 2012). The 'crash' (known as 'Atari Shock' in Japan, see Suominen 2012) is widely attributed to the high development and licensing costs and poor market performance of titles including Atari's *E.T.* as well as minimal publishing quality control and the emergence low-cost, multifunction home computers such as the Commodore 64 (see Guins 2014; Stanton 2015). Released in 1985, the NES would go on to sell nearly 62 million units (Nintendo 2015b) dominating the U.S. market (Kinder 1993).

3 These non-linear, spatially discontiguous warps have also become a staple for speedrunners who compete to race through games as quickly as possible (Newman 2008). Repositories such as speeddemosarchive.com showcase the deep analysis and mapping of game spaces and routes by fans.

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Section III

The Archive

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10 Repacking My Library

Jennifer deWinter and Carly A. Kocurek

In the summer of 2014, U.S. news media reported the somewhat shocking news that Michael Thomasson had just sold his videogame collection for US$750,000 (Makuch 2014; Starr 2014). Representative of 30 years' worth of collection, this story highlighted the monetary value of game collection within fandom. Yet fan collections require more than an assumed "return on investment". Benjamin's (1931/1969) essay of longing, "Unpacking My Library", nods to the mysticism of collecting, the ability to look into the past and hold that past in the hands of the present (60–61). More recent, though, are modern essays on collectors that look to a process of collection closely connected to capitalist consumption and ownership (Belk 1995; Watson 2000). Yet collection often reflects complicated social and cultural practices, such as a desire to build concrete memories, compete within groups, and invoke cultural nostalgia (Bjarkman 2004; deWinter 2014; Geraghty 2014). In her article "To Have and to Hold: The Video Collector's Relationship with an Ethereal Medium", Kim Bjarkman identifies six motivation-based subjectivities for collectors: the captor who will record television and let nothing get in the way of a program run, the chronicler who preserves people's mediated histories, the crusader who collects for civic duty, the competitor who views him- or herself as the true fan with the most complete collection, the creator who argues for the art of fetishized objects, the curator who culturally curates and preserves everything and finally the cataloguer who takes joy from the organising and labelling of objects and media representations of the collection.

As becomes evident in Bjarkman's categories, personal collections often mirror the acquisition and curation processes employed by museums and educational institutions, so we are little surprised that there is tremendous overlap in the labour of these two groups. Collection is an act of love, yes, but the act of collecting consumes time and space and is also a lot of work. Often the small budgets of state and federal institutions limit what public game archives (what few there are) can do to amass the objects of game culture and history[1]. However, what we see again and again is fan game collectors opting to donate or sell their collections to research archives, resignifying collectors' intentionality in a moment of

transformation. The divestment of a collection through its contribution to an archive is a particular instance in which value is both generated and altered.

In this chapter, we focus on that moment in which fans decide to turn over collections for research and professional preservation. We base this on interviews with U.S.-based fans and archivists on the issues surrounding collection-driven preservation. We interviewed seven collectors to understand their motivations for first collecting their game materials but then more importantly why they chose to donate those collections to professional archives. Further, we interviewed five archivists about their relationships with fans and how that relationship affects their collection and archiving practices. In particular, we consider the point at which fan-cultivated collections are sold or donated to institutional archives and what motivates this divestment of a personal collection. We also consider the role fans play in preserving, in particular, the material culture of videogames, including items frequently dismissed as paratexts (ie, packaging, promotional materials, and 'feelies' – those additional materials packaged with the game that often act as paratexts to the digital game experience). In speaking with archivists, we explore the extent to which fan actions have become part of the strategies and methods of preserving game culture and to what extent archives cultivate relationships with fan communities as a collections strategy. We have interviewed multiple donors who have recently turned over their collections, and we have also interviewed archivists working with the Strong National Museum of Play, the Learning Games Initiative (LGI) and the Stanford University Libraries, all professional archives that have benefited from this practice. What emerges is a complex emotional decision and set of actions that affect and will continue to effect game preservation. We argue, then, that game preservation relies on a variety of different constituents with different motivations, and thus game preservationists must understand the emotional, economic, and cultural complexities that are visible in that moment of transfer.

From Commodities to Collections to Archives

Pinpointing when commodities become collections within fan communities is difficult. Scholars have suggested that the difference between commodity and collection is gendered – women are seen as buying things while men instead collect things (Auslander 1996; Goode 2007; Sewell 2014). Indeed, understanding collecting as fannish activity is viewed as gendered, for as Bainbridge and Yates (2010) observe in their study on masculine identity and DVD culture, "the fan is seen as being someone too easily seduced by the pleasures of popular culture" (9). Yet collection itself leans masculine, for as Goode (2002) asserts, collecting suggests a predetermined end, and its very teleological and uninterrupted

construction marks it as masculine consumption – men have the means and the drive to collect. In some cases, collections emerge based on sheer numbers, as in the case of Thomasson, who was once certified as having the "world's largest" collection of videogames by Guinness World Records, but collectors may also collect more specifically, obtaining items related to a specific game or designer or focussing on a particular medium. Dan Hower, for example, specifically collects flyers for arcade games. His collection is so extensive that, when he chose to contribute scans of his collection to The Arcade Flyer Archive (TAFA), an electronic repository of flyers, he created a significant backlog; TAFA handled the situation by allowing Hower access to upload his own flyers directly. At present, Hower's collection makes up nearly half of TAFA's repository ("About Us", n.d.). One of our interviewees, George Phillies, who collects board wargames, makes this link explicit. In response to the question "What makes your collection important", Phillies responds: "Size. The next largest collection that I know about is around 3000 board games, but no one else has a significant board wargame magazine collection, and acquiring one would be almost impossible".

In addition to this, collections emerge when archives are invoked, as is most evident with the formation of the Learning Games Initiative archive, primarily housed at the University of Arizona. Ken McAllister and Judd Ruggill reflected on their decision to create a research archive early in their games research. In speaking about this transformation, Ruggill explained:

> [P]rior to starting the archive, Ken and I both had piles of games/hardware lying around that we'd purchased over the years for personal use. Neither of us was avidly collecting these things – the piles were simply the inevitable aggregation of the inveterate gamer/hobbyist. Essentially, the piles had not yet been passed on to the local second hand software emporium or thrift store.
>
> It was as we gathered the piles together into one big pile – to create a resource for our budding research into games – that we thought it would be good to share the resource with other folks too. Hence, the archive. So, the concept of the archive grew out of the process of aggregating detritus into a collection to be shared and deployed for personal use.

In this instance, the archive and collection are born almost simultaneously; the resignification of "piles" and "detritus" into archive automatically created a collection. This was not a collection born of a desire to justify commodity fetishism; rather, the birth of both the collection and the archive were closely linked to research and professional goals. This echoes a long history of the practice of collection, for as DeLyser (2015) notes, "Collecting has also long been a scholarly pursuit and

focus of scholarly observation" (211), which has fuelled scholarly research and work.

We saw in some of our collector interviews similar motivations: collections to support research. For example, Frank Cifaldi noted that he started and maintained much of his game magazine collection to support his burgeoning journalism career. Cifaldi explained: "I was in the very early days of being a journalist interested in the history of games, and I started building a reference library to give myself an advantage over all the other people who were competing for that job at the time". Since those early motivations, Cifaldi noted that his motivation has changed: "my interest now is to just have a library of this scope that exists somewhere. Right now, it's in my house, someday it won't be. This material disappears and disperses all too easily, and I think it's worth keeping under one roof". George Phillies, likewise, amassed and used his collection, but for academic and game design research. Phillies is author or co-author of five game design books with a particular emphasis on wargame design. His interests in collecting transformed from fan to collector to researcher and finally to hobbyist archivist. Phillies says about his collection: "it is there to be seen. I have had one visiting scholar set up residence for a week, and another propose to visit when time permits. I have had a TV crew be in residence for a day, though the project is still incomplete. [...] It is a matter of pride".

Both Cifaldi and Phillies might be classified as either a connoisseur or a cataloger in Bjarkman's categories. However, their actions nod toward the ideologies of archiving – that the collections bring together objects belonging to the same aggregation and are recorded and preserved in a content neutral manner (*Describing Archives*, 2013), even though, as Museum Studies has explored, such collections can never be neutral and are always embedded in modernist preservation ideologies (Hein 2014; Starn 2005). Indeed, we see here the emphasis on research motivation that echoes professional archivists: "For all the opportunity to reconstruct the past captured in these documents and to imagine the future research they might support, I had a well-defined task to accomplish, a product to produce, techniques and methods for proceeding, and standards against which my work would be judged" (Fleckner 1991, 10). However, these two, Cifaldi and Phillies, are not fan collectors who transform their collections into archives in the same way that the LGI co-founders did. These are almost proto-archives. The collection, curation, and even research and sharing is there, but not within the institutional and formal frameworks of archives. Both of these collectors have stated that they have made plans to turn their collections over to recognised archives. George Phillies, for example, has already arranged for his materials to be donated to the Strong National Museum of Play after he passes away, and he chose this archive based on a personal referral from someone else who donated materials to The Strong. Once

the material enters the archive, Phillies notes, "It will be the definitive archival collection available to scholarly study. Given the endowment, it will hopefully be maintained as a complete collection through additional buying". Cifaldi, after discussing previous game donation, discusses his eventual plan to donate his game magazine collection: "I will be donating these magazines someday to some public space, I just haven't figured the right one yet, and when I do, it will be because I never really wanted to OWN them, I just wanted to access them. So as long as I can do that, it makes no difference to me. I'd love for other people to use this stuff, and I've had interested people come over and try to do some research, but it's kinda hard to coordinate when it's someone's home that they live in".

These personal collections are in a liminal state – a research collection that will become part of an institutional research archive. This liminal state is one of the key places that we can talk about resignification of personal collection into institutional archival holding and the importance of paying attention to this. The personal valuation and devaluation of collections speaks to aspirations and the cultural value that we invest in things as well as our relationships with those things, which are frequently marked by rich complexes of emotional meaning and by sensual experiences – the feel of particular plastics, the smell of paper, the gloss of magazine pages. This is part of why the act of collecting is often seen as fetishistic, and why Sherry Turkle writes in *Evocative Objects* (2011) about the seeming anonymity of digitised drawings and how that anonymity spills over to her sense of self; or why Benjamin speaks to the rich air of anticipation that unpacking his own collection provokes in him (59). Objects, as Turkle notes, are evocative, and so are collections. The resignification of these, the transmogrification of personal collection into institutionalised archival holding, is a moment ripe with shifts of meaning, shifts of value, shifts of understanding. This moment is important to make sense of as archivists, collectors, fans, and scholars work together towards preserving and understanding the history and culture of games.

Industry Professionals and Shifting Value

Some collectors are also industry professionals, invested at least in part in preserving the record of their own work. The UT Video Game Archive, University of Texas, Austin, Texas, is built around the donations of several such collections contributed by industry professionals, among them Richard Garriott, Steve Jackson, Warren Spector, Richard Vogel, and Gordon Walton ("UT Videogame Archive", 2006–2014). These collections created by the donation of the personal archives of developers are often akin to the papers of writers, including working documents from design and production as well as, at times, business records and other documentation. Collections like these can provide critical insights into

the processes and practices of individual game developers while also illuminating aspects of industrial culture. Given the decline in corporate archives, these types of collections are especially critical for researchers.

Industry professionals provide a wealth of materials because they have both the released materials such as games, promotional items, advertisements, and licensed merchandise but also development materials ranging from personal notes to internal memos and documentation that are important for game development and game history research. In discussing the games that she donated to the Learning Games Initiative archive, Glenda Adams explained "I started keeping these games when I started working in the videogame business, initially keeping copies of games I worked on. Later I also received games from other publishers we worked with, and began a minor corporate collection of games the company I ran (Westlake Interactive) worked on". However, when Adams' career shifted from computer game development to management and iOS development, along with a move, she and her partner decided to donate the collection: "I felt like if we kept it, it would just be a box in storage, and as part of the archive, it would be available to other people to get some sense of the history of Mac games and continue to have some life at LGI". In this, these objects are treated as living objects rather than meticulously preserved ones, still in use and circulating, albeit outside of the original life of the objects (see, for example, Silverstone's 1992 discussion of the life of objects in the context of Museum Studies). The accessibility and usability of items was important to Adams, who saw her collection as a representation of her personal work and career.

While Adams admits that her decision to donate was based on her partner Suellen Adams' academic connections to an archive, not all game designers see the opportunity or even the benefit to this type of connection. In her plenary speech for the First International Histories of Games Conference in Montreal (June 21–23, 2013), Brenda Romero called on game developers to see the value of collaborating with archives and donating works, and she called on academics to reach out and educate those same designers. This has long been the strategy of Dean O'Donnell, who acquires archival materials for the Worcester Polytechnic Institute (WPI) archive and runs the oral history of games project in Massachusetts.[2] In answering how he developed relationships with possible donors, O'Donnell explained: "We went after game development professionals and asked them to 'clean out their closets'. Many gave selections that they had multiple copies of…. The major concern was whether or not the collections would be used. Putting them in a dusty closet somewhere at WPI seemed the same as leaving it in their dusty closet. On the other hand, games, ephemera, and documents that would be looked at and somehow contribute to education was much more appealing to them". Like Adams, O'Donnell noted that game designers wanted their creations to continue to be used and have a life beyond the personal histories that

they represented. And this makes sense when considering that designers create objects for use, for play, and for creative outlets. That these games are resignified when entering the archive might not be the ideal life for these creations: Collectors often want to know 1) that their items will be cared for and sometimes expect their own exacting standards for preservation to be used, and 2) that the games themselves will be used. The latter of these concerns can be difficult for archivists to definitively respond to because many of the old games and systems are quite fragile. Further, the concern stands counter to the observation made by three of the five archivists that we interviewed – that people donated because of space constraints or a desire to get things out of the closet. As O'Donnell pointed out, these game designers would willingly keep the objects in their own closet if all that can be promised to them is curation in another closet.

However, even here, we see a limitation of agency in turning over materials to archives. In reminiscing on some of his previous acquisition attempts, O'Donnell remembers: "the biggest roadblock we got was getting work product (design docs, concept art, etc.) was that the creators themselves didn't own their own stuff. Some large publisher which had gone out of business years ago owned it, and the creators didn't even know who to ask to get permission to give it to us, and didn't want to do the legwork to find out. We didn't have the contacts to find out, so much of that stuff stayed with the creators through fear of lawsuit". Thus, even in the framework of collections and archives, objects are already determined as corporate property within a distributed labour market that is nevertheless limited by secrecy and non-disclosure agreements (NDAs). And it speaks to the strength of the ideology of secrecy that people who might otherwise donate materials to archives are discouraged. However, as Raiford Guins, archivist for the William A. Higinbotham Game Studies Collection notes, "mostly among former members of the games industry—donors like the fact that a museum will safeguard their materials for posterity and research", even as that desire can put them on the wrong side of corporate policy and legally binding NDAs.

It's Just Junk Lying Around: Institutional Value to Old Materials

In discussing the Samuel Beckett archive, Fifield (2012) argues "An archive is a dumping ground, where unpublished documents and unwanted scraps reside while final drafts and unabandoned works fill bookshelves, newspapers, examinations, and readers. The archive's content is that which the author casts off as inessential, whether sold on or donated. But the process of archiving—of taking these resources in—is primarily one of a reversal" (674). This is the archive of a single author. Likewise, game archives are the "dumping ground" of a tremendous

amount of "cultural detritus" (to borrow a term from Ruggill's earlier description of his personal collection). In interviewing both archivists and people who donated, we came across the claim, again and again, that people were just donating "old junk". And in an era when such titles as *Declutter Your Life: Reduce Stress, Increase Productivity, and Enjoy Your Clutter-Free Life* (Stewart 2013) and *The Life-Changing Magic of Tidying Up: The Japanese Art of Decluttering and Organizing* (Kondo 2014) are best-selling books, signifying game objects as junk and moving them out of the home makes perfect sense. In many ways, the games become junk when they become matter out of place – Mary Douglas' definition of "dirt" (1966); yet games in archives put matter back into meaningful place. As Fifield points out, the process of bringing games into the archive reverses the value. Or as McAllister and Ruggill (2010) argue in applying Ernst Bloch's theories of play and utopia to game studies, "The rubbish of culture is not irredeemable. Subjected to a dialectical apocalypse—one supplemented by the perspective that even society's junk contains secrets about the nature of the human soul—the most inconsequential of artifacts can keep utopia proceeding apace" (55).

What is more interesting, however, than the decision to get rid of these things is the decision to get rid of them by donating them to archives. In some cases, the people who donated did not use the word "junk". They spoke, instead, to stuff that was lying around, games their kids left behind when they moved, or stuff found in old boxes. These were not collections in the sense that people predetermined a focus and goal (Sewell 2014). These were commodity objects, entertainment objects that belonged to particular moments in history, to particular platforms that may or may not be in popular use, and to particular types of players who may have left or grown out of the genre. Interestingly, these people chose to hold onto these materials for a long time. When we asked one of our interviewees why he had initially kept these materials despite his own decline in interest, he explained that he spent a lot of money on the games, so it felt wrong to give them to Goodwill or throw them out.

During our interview with him[3], Raiford Guins, in fact, explained that he uses the resignification of "stuff lying around" to "important archival materials" in soliciting new materials. He explained that one of the reasons that people opt to donate their game materials and collections is because of the cultural value invested in turning the materials over: "In regards to the Higinbotham collection, the typical narrative that we encounter is that the students no longer have 'any use for' their old copies of Nintendo Power, for example, or that their parents are redoing their house and need to relocate materials!" Guins adds to this, "We mainly accept magazines or books related to videogames. My Game History course includes a few weeks on game preservation and the subject tends to build an awareness in my students – they inform me that they'd rather give the University games than GameStop!"

The meaningful resignification of objects and the process of donation are transforming our relationships with those objects. The role of the institutional archive invests the object with, if not artistic aura, space-bound aura nonetheless. The work of dada and avant-garde artists like Baroness Elsa von Freytag-Loringhoven – a contemporary of Marcel Duchamp's who may, in fact, have been the true creator of "Fountain", a work frequently attributed to Duchamp, in which a urinal was submitted as recontextualised sculpture (Higgs 2015) – and Marcel Duchamp speaks to the importance of both rhetorical framing and spatial context in our understanding and valuing of objects. In the context of a gallery, the urinal that was "Fountain" was either art or a sneering middle finger to artistic propriety, but it was definitely not a toilet. Similarly, comic books neatly stored in sleeves and boxes, toys preserved under acrylic boxes and records alphabetised in crates may all be collections, but these same objects crammed carelessly in a closet, basement or attic become junk. Removed from either of these contexts and re-housed in an archive, they become artefacts. In the case of a collection, the value of these donated items is preserved even in the process of divestment through this recontextualisation; in the case of a pile of junk, the objects are transformed and given new life and new value.

Capital, Both Cultural and Monetary

Throughout the interviews referenced previously, all of the collectors who identify themselves as collectors see tremendous value in their collections. For example, Phillies calls his collection the definitive archival collection of board wargames. Further, in his interview with us, Kevin Gifford[4] states unequivocally: "It's important because it's really a history of the world of home computers and videogames as it happened. It describes a time when users had to be truly dedicated to their machines and there was more of a personal connection to the hardware itself than most of us have with our PCs and portable gadgets these days". Cifaldi echoes this sentiment:[5] "It's a time capsule of information that, for the most part, isn't very easily accessible". These collections, complete and temporally bound to specific historical contexts bring to mind another of Benjamin's famous essays: "Art in the Age of Mechanical Reproduction". Temporal removal is yet one element that invokes aura, giving Art a sense of otherness, of something separate and special. Collections are culturally significant because they are gathered and bound, and in their significance, they demand and convey capital.

Archivists noted that some people opt to turn their collections over for a monetary sum. This is not as mercantile as it seems, because these collectors did not start with the intention of reaping monetary rewards at the end. Even Thomasson, the man who sold his collection on the open market for three-quarters of a million dollars, did not start his collection

with this goal in mind. Yet capital, both cultural and monetary, affixes value onto collections and can be a great motivating force to convince fan collectors to part with their objects. For example, when discussing his divestment of his game and PC magazine collection, Gifford explained:

> It was 2012, by which time my collection totaled nearly 8,000 volumes and comfortably took up the walls of my home office. I was moving from Texas to Oregon and I didn't want to pay to ship the entire collection; I wrote a weekly blog about mags based on this library, but it's not like I was living off of it. So I made a call for some museum or library willing to take in the collection, and the Strong gave me the best offer – they covered all shipping and flew me over to check out the place. So I was pretty stoked. That and we also talked about digitizing the collection, something already done with many mags but far from everything in my library. That hasn't really happened yet but I'm patient and I'm sure it will eventually.

Gifford reaped the rewards of his investment in the form of cultural capital, which is a fairly minor cost payout for years of dedicated labour along with his personal monetary and spatial investment. Further, it was only at the point at which his collection became substantial that it had enough value for exchange.

In addition to the value inscribed at the time of transaction, the collector gains cultural value through a close connection with archival institutions. For example, in his list of reasons that people opt to donate, Henry Lowood of Stanford University and curator of their History of Science & Technology Collections and Film and Media Collections says collectors "desire to have a collector/collection gain prestige by association with the institution or other collections we already have"[6]. This is a process whereby the cultural capital of an institution – Stanford University, for example – adheres to the collection initially cultivated by an individual and, by extension, to that individual. Collectors become major donors but also gain a clear association with these particular archives and institutions, a kind of cultural capital for both themselves and their collections. The objects in collections often have deep personal value, and can even at points be described as beloved. By donating collections, by putting them in the context of a legitimised, recognised archive, collectors have a means of making the value of their collections visible to others who likely never loved the objects. The personal value of the objects is transformed into cultural value; these exchanges can be deeply emotional and also intimate.

Although many of the ways that collectors and archivists navigate these values are complicated and difficult to quantify, that the U.S. government assigns monetary value to these objects cannot be ignored. McAllister and Ruggill[7], for example, list tax deductions amongst the

reasons why people donate. Whether these objects retain the original value that they had at the time of purchase (highly unlikely when the used game market sees discs that cost US$60US sold at US$10 just the following year), the fact remains that the Internal Revenue Service allows charitable donations as a deduction item. So a box of game materials, collecting dust in a closet, is vested with monetary value the instant that it is signed over to a game archive.

The creation and transformation of value – monetary value, cultural capital, and so forth – however, is only possible because of the resignification of the collection into an archival holding. This is not to say that collections never have monetary value or produce cultural capital for their owners otherwise, but that the moment when a personal collection becomes an archival holding is a key moment at which meanings and values are both produced and changed. This is a process possible only because of the interactions between collectors, archives and archivists.

Symbiotic Relationships and Future Concerns

The final section of this chapter focusses primarily on archivists. We asked each of them to speak to the relationship between collectors and archives, and the answers indicate that the archivists feel deeply indebted to fan collectors and others who opt to donate their personal materials to the institutional archive. For example, Ruggill and McAllister (2010) spoke at some length on this topic, noting:

> In our experience, collectors provide the seeds of many of the larger archival collections, which then allows the archive to attract more funding, media attention, and collections. Collectors often also have unusual and/or complete collections, which would be difficult for institutional archives to build on their own. Collectors have pioneered medium-specific preservation techniques and document them meticulously, which institutional archives benefit from greatly (this is basically citizen science). Collectors are also key to the development and maintenance of online and in-person communities, both of which facilitate the distribution of knowledge throughout the archivist/collector communities. Finally, collectors often have incredibly detailed knowledge of artifact meta-data, which archivists can rely on for cataloging and for the production of finding aids.

Guins imagines the relationship casting the collector as a novice archivist who might make their personal collection available to interested researchers through a number of means: "The biggest service that collectors can provide is to grant access to their collection to researchers. This can take the form of the establishment of private, independent museums (e.g. Videogame History Museum), by way of donations (or sales)

to museums, or the granting of access to private collections". Lowood summarises his views as follows: "Bottom line: I do not see opposition in the relationship of collector and curator, but rather one of connection and collaboration, even if sometimes that connection is not direct".

With this effusive praise of collectors in mind, we turn to the challenges of preservation. Collectors often revere their objects, handle them gently and rejoice in re-reading a magazine or replaying a rare game, and all of our collectors noted this relationship with their objects. These are sensual and personal things, objects of desire and nostalgia. However, when these collections pass into the hands of museums and archives, the human-object relationships are different. As Lowood notes, collectors often express concerns about preservation, "sometimes involving education about how the Library ensures long-term preservation of materials, sometimes focussed on specific conservation problems in a collection". These collectors know that there are challenges and various approaches to preservation, so even as they give up their objects, they want assurances that the objects will still be valued and maintained. And if they are not, then hard feelings can arise between these two generally symphonious groups. As Guins recounts in his interview:

> When researching *Game After* I interviewed a number of coin-op collectors and one expressed his reluctance to 'trust' museums with his collection. He shared a few stories about collector friends that allowed museums to temporarily borrow items for an exhibition and how the items were 'mistreated'. What I took away from the conversation is that collectors feel that museums won't care for their possessions in the same way. And, they are right given that museums manage vast amounts of objects for public access/education and collectors manage private collections for personal use.

This transition from personally held item to institutionally maintained artefact is a key moment in the transformation of the object's meaning, but is also, as Guins notes, a moment that can be ripe with anxiety and produce distrust. As archives continue to grow their own holdings in games and related materials, they would do well to consider the complex transitions of meaning that occur around the divestment of collections through archival donations.

Conclusion

Toward the end of "Unpacking My Library", Benjamin wrote, "But one thing should be noted: the phenomenon of collecting loses its meaning as it loses its personal owner. Even though public collections may be less objectionable socially and more useful academically than private collections, the objects get their due only in the latter" (67). At some level,

Benjamin is right – the single-mindedness, the care, and the personal narratives that define the personal collection are lost when they enter "the collection". Archivists and librarians are not collectors; they collect, to be sure, but their subjectivity is different, and their relationship with the objects is necessarily different as well. McAllister and Ruggill's decision to turn their research collection into an archive means that at any time, someone can use the materials, bend a page, or blow into a rare Atari cartridge, quickening its erosion.

However, the relationship between the game collector and the game archive indicate that this is not a binary set of relationships – it's not just the collector and the institution. Rather, the act of donating, selling or lending materials sees these objects in constant states of transformation. We see it in the research collections of our interviewees who open their homes to people who want to use the materials. We see it in the liminal process of resignification, when people start to think of their home collections as parts of greater archives before the handover has occurred. We see it in the moment when 'junk' becomes a 'collection' simply because a person donated it to an institutional collection. And we see a return, a pride in materials that have an institutional home, and what that says about the person collecting through the connection provided by objects. The relationship between fans, collectors, and archives is essential to institutions across the United States and around the globe as they work to preserve the history and culture of games. Understanding the cultural, emotional, and economic contexts in which fans become collectors, and in which collections become archival holdings is essential in maintaining these relationships and in developing a positive, generative community united in shared concern for game history and preservation.

Notes

1 Although the number of institutional archives relating to video games has grown in the United States and internationally, these archives are still few. Prominent examples include the Brian Sutton-Smith Library and Archives of Play at the Strong Museum of Play in Rochester, New York (USA); the University of Texas Video Game Archive in the Briscoe Center for American Culture in Austin, Texas (USA); the extensive holdings of the Stanford University Libraries in Stanford, California (USA); the International Arcade Museum (USA); the National Videogame Archive (UK); the Soviet Arcade Games Museum (Russia); the Game Archive Project (Japan) and the Computerspiele Museum (Germany).
2 These interviews are available online at http://alpheus.wpi.edu/imgd/oral-history/.
3 Raiford Guins, interview by Jennifer deWinter and Carly A. Kocurek, August 15, 2015, IRB file 15–157, transcript, Learning Games Initiative, Massachusetts Archive.
4 Kevin Gifford, interview by Jennifer deWinter and Carly A. Kocurek, August 12, 2015, IRB file 15–157, transcript, Learning Games Initiative, Massachusetts Archive.

5 Frank Cifaldi, interview by Jennifer deWinter and Carly A. Kocurek, August 12, 2015, IRB file 15–157, transcript, Learning Games Initiative, Massachusetts Archive.
6 Henry Lowood, interview by Jennifer deWinter and Carly A. Kocurek, August 27, 2015, IRB file 15–157, transcript, Learning Games Initiative, Massachusetts Archive.
7 Ken S. McAllister and Judd Ruggill, interview by Jennifer deWinter and Carly A. Kocurek, August 17–18, 2015, IRB file 15–157, transcript, Learning Games Initiative, Massachusetts Archive.

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11 Sega Saturn Fan Sites and the Vernacular Curation of Videogame History

Benjamin Nicoll

Fan-created videogame websites often document the histories of specific games and consoles by drawing on the vernacular practices of fans and collectors. Visitors to these sites are invited to take part in technical discussions, share images of personal collections and catalogue discursive materials surrounding various hardware and software artefacts. Yet rarely have these sites been assessed for the curatorial techniques and preservation strategies they employ in order to promote and document the histories of obsolete videogame technologies.

Focussing specifically on fan sites dedicated to the Sega Saturn platform – an obsolete home console that has, since its release in 1994, gained something of a cult status – this chapter will analyse the way that gaming history is curated in these digital contexts. I argue that such practices can be understood as instances of what Jean Burgess (2006: 204) terms "vernacular creativity" – everyday forms of "cultural participation and self-representation" that develop outside the institutional contexts of galleries or museums. My analysis of the sites is structured along three overlapping levels of symbolic engagement that are, for Sheldon Annis (1986), simultaneously constitutive of the (ideal) museum experience: dream space, pragmatic space and cognitive space. By considering the visitor's experience on each of these levels, I will give a sense of the curatorial language at work on these sites. I argue that this curatorial language can offer insight into how museums might address the challenge of communicating people's lived experiences and personal relations with gaming's past.

My analysis builds on recent scholarly work that investigates not only the material challenges associated with documenting and exhibiting obsolete hardware and software, but also the question of how to preserve the "popular memories" of gaming history (Guins 2014; Newman 2012; Stuckey, Swalwell, & Ndalianis 2013). One of the main observations to come out of this body of research is that fan practices are already embedded in a range of techniques oriented towards the goal of curating player memories and histories (Barwick, Dearnley, & Muir 2011; Naskali, Suominen, & Saarikoski 2013; Stuckey & Swalwell 2014). What this chapter seeks to develop is an understanding of how these techniques

are expressed on fan sites as specific instances of vernacular curation. Many of the sites I examine invite visitors to communicate their personal experiences with Saturn games and consoles by contributing their own game reviews, photos and creative works to the site databases as well as by commenting on or viewing the contributions of others. This is often complemented with the more pragmatic enterprise of preserving the materiality of the technologies themselves, in addition to ephemera such as magazines and advertisements. Such practices, I argue, add an important vernacular dimension to the way gaming history is preserved and curated.

Vernacular Curation

In her article "Hearing Ordinary Voices", Burgess (2006) situates the concept "vernacular creativity" in relation to ongoing debates within Media Studies about the democratisation of cultural production in contemporary society. Whether this democratisation is seen as an outcome of "convergence culture" (Jenkins 2006) or the product of a new, more exploitative culture industry (Lash & Lury 2007), scholars tend to agree that the activities of media audiences are contributing to a blurred distinction between production and consumption. For Burgess, what makes these existing debates problematic is that they tend to fall into one of two categories. Either they focus on the relatively extraordinary practices of fans over and above more mundane media practices or, alternatively, they retain Adornian models of ignorant masses duped into producing user-generated content for media enterprises, free of charge. The idea of vernacular creativity seeks to redirect the focus of these debates back to the critical and political foundations of British cultural studies – that is, to dignify people's everyday, non-specialist and creative practices with media. As Burgess (2006: 207) points out, vernacular forms of cultural production such as "storytelling, family photography, scrapbooking, [and] collecting" have been around long before the rise of web 2.0. In her view, the Internet simply became an alternative environment for people to carry out these practices of vernacular creativity in a digitised context.

Before considering the form that vernacular curation takes on these fan sites, it is worth reflecting on the challenges of curating, exhibiting and communicating videogame history more broadly. In 2012, the Museum of Modern Art announced that it would begin acquiring videogame hardware and software as part of its permanent collection – a decision that many saw as symbolic of the medium's legitimation as a cultural and artistic form. Videogame exhibitions are now a big business; the Australian Centre for the Moving Image (ACMI) drew 129,372 visitors for its "Game On" exhibition in 2008 (Australian Centre for the Moving Image 2007/08: 25), whereas the Smithsonian's 2012 "The Art of Video Games" exhibition attracted more than 700,000 visitors (Smithsonian 2012: 16). Yet, despite the popularity of these exhibitions, there is still

a lack of consensus about how the history of games should be curated. Although exhibitions such as "The Art of Video Games" have made significant progress in this regard, they have also attracted criticism for retaining somewhat antiquarian modes of curatorship (for example, by displaying games as static, non-playable objects). On the other hand, exhibitions more focussed on making classic games available for play can be equally unsatisfying, especially when such games are too long or complex to be adequately experienced in a museum space. Exhibitions such as ACMI's "Game Masters" have attempted to address these issues by focusssing more on the design history of games. In its curation, "Game Masters" assigned a privileged status to source materials such as design sketches, concept art, interviews with developers and so on. At present, it seems that the most critically and economically successful exhibitions are those that strike a balance between "object and concept-oriented" design experiences in this way (Naskali et al. 2013: 233).

Fan sites have grappled with similar problems in their efforts to document videogame history, yet their solutions to these problems differ somewhat from the aforementioned examples. Partly, this has to do with the curatorial handicaps imposed by an online environment – for instance, it is not possible to display Saturn games in their original, playable form. But another reason has to do with the vernacular techniques that fan communities bring to the project of documentation and preservation, as well as their capacity to work around institutional constraints. As Helen Stuckey and Melanie Swalwell (2014: 528) point out, such sites operate according to a "gift economy" of collective knowledge production, where the focus is not just on compiling facts but also on collecting content that is more personal, reflective and creative in nature. In terms of visual design, the sites tend to retain the expressive sensibilities of what Olia Lialina (2005) calls the "vernacular Web" of the 1990s. According to Lialina (2005: n.p.), the vernacular Web

> was bright, rich, personal, slow and under construction. It was a web of sudden connections and personal links. Pages were built on the edge of tomorrow, full of hope for a faster connection and a more powerful computer. One could say it was the web of the indigenous…or the barbarians.

The vernacular Web favoured "expression over structure", authenticity over impersonal content management ("Welcome to my Home Page!"), multiple "frames" containing hyperlinked images and words, and, of course, "a lot of links. Links on every page" (Lialina 2005: n.p.). Vernacular Web aesthetics permeate the design of Saturn fan sites, often because these sites were actually created in the 1990s. For instance, sites such as "Dave's Sega Saturn Page" (n.d.) have remained unaltered since they were first created in the mid-1990s, and are kept alive solely for

the stated purpose of "historical reference and nostalgia" (Sega-Saturn.com is Back! 2009). As such, they stand as important historical sources in their own right. Other sites, like "Hardcore Gaming 101" (n.d.), are thriving communities that deliberately remediate the aesthetic of the vernacular Web. It seems that the reason for this is not to hark back to a forgotten era of Web design, but rather because the vernacular Web offers an effective visual aesthetic for the curation of gaming history. The incentive to contribute content to the sites is also, no doubt, symptomatic of a "post-digital" art environment where amateur modes of curatorship and "self-design" occupy a prominent position in networked media practices (Apperley 2015: 239; Groys 2010: 41).

The Sega Saturn was first released in Japan in 1994 and has since gained a large fan-base in the retro-gaming community. A CD-based follow-up to Sega's successful Mega Drive console (known as the Sega Genesis in North America), the Saturn was designed to break into the territory of three-dimensional (3D) games development while keeping its feet planted firmly in the conventions of two-dimensional (2D) genres. Despite its popularity in Japan, the console was a commercial failure in most parts of the world. Its graphics chip could not accommodate 3D visuals at the standards set by the PlayStation and Nintendo 64, so Sega eventually abandoned the console to focus on developing the Dreamcast. Since then, however, the Saturn has been valorised by critics and fans as a platform whose software catalogue represents the height of 2D sprite-based visuals. As such, the fan sites I examine are an important window onto not only the Saturn's memory and afterlife, but also the wider cultural history of 1990s videogames – for instance, the transition from 2D to 3D games development and the broader business history of Sega. My analysis is, however, less concerned with the historical content of the sites than it is with the formal characteristics and social contexts of their curation. In other words, my central aim is not to recount the Saturn's history, but rather to understand the vernacular processes of documentation and preservation that fans use to negotiate the platform's cultural meanings.

Taking influence from Sheldon Annis's 1986 typology of museum spaces, my analysis is structured along three lines of inquiry: dream space, pragmatic space, and cognitive space. Annis (1986: 168) argues that these interconnected spaces make up the "expressive medium" of the museum and, when experienced simultaneously, constitute "[t]he meaning of a visitor's experience". The first line of inquiry, dream space, refers to the "field of subrational image formation" – the way a curated space can stimulate our senses, imaginations, and memories (Annis 1986: 169). In this context, I consider the sites in terms of their layout and composition, and the way they often privilege vernacular memories and histories over more "professional" modes of historiography. The second line of inquiry, pragmatic space, refers to the social nature of a

museum visit. Here, I look at the relational processes of collaboration at work in forums and comment sections. My definition of pragmatic space also includes the more overtly practical components of the sites such as do-it-yourself (DIY) guides for hacking and modding the Saturn. The third and final line of inquiry, cognitive space, refers to the capacity for museums to educate and act as repositories of knowledge. In this section, I analyse sites dedicated specifically to the vaporware title *Sonic X-treme*, an unfinished Saturn game that never saw an official release. Sites like the "Sonic Xtreme Compendium" (n.d.) have collected various development assets surrounding the unreleased title in an attempt to reconstruct a playable version of the game.

Dream Space

Putting aside the design tactics of the sites for a moment, how do they actually work? Most have a main page with a welcome message from the site's designer (or its core community of editors), which often includes a breakdown of the content that the visitor can expect to find, how to navigate the site and an invitation to contribute. Many sites eschew search engines, portals and catalogues in favour of navigation via external links. These links are usually arranged under categories such as news (editorials often feature on the front page), hardware, software, reviews, technical walkthroughs and forums. Navigating this structure and looking for information is time-consuming but rewarding, because it often leads to fortuitous encounters with unexpected topics, articles and games. The site "Satakore" (n.d.) even has a "Discovery Channel" page that displays a randomised selection of Saturn games to encourage the visitor to take an unexpected detour through the site's extensive software database. Even sites that use search engines, like "Hardcore Gaming 101", are densely populated with links that may lead the visitor off their intended course through the site. The sites are, in this sense, experienced as labyrinthine dream spaces – a "flow of images and meanings – highly personal, sometimes lulling, sometimes surprising, more or less conscious" (Annis, 1986: 169). The visitor's symbolic engagement varies depending on their "choice of movement among stationary symbols" (Annis 1986: 168).

The "Hardcore Gaming 101" article (Szczepaniak 2013) on *Bulk Slash* (1997), a 3D shoot 'em up Saturn exclusive, is typical of many of the pages found on these sites. The article discusses the gameplay of *Bulk Slash* – its characters, plot, visuals and controls – as well as its design history, noting that the game is often misattributed to Hudson Soft, but was actually developed by a company called CAProduction. The writer gives a highly personal account of the game: what he likes and does not like about it, what it means to him personally and why he believes the game should be remembered. Towards the end of the page,

a kaleidoscopic gallery of *Bulk Slash* screenshots fills the entire screen, which has the effect of turning the article into a kind of temporal sculpture (a common technique in many "Hardcore Gaming 101" articles). The author also includes a scan of a *Bulk Slash* review from an early issue of *Saturn Power Magazine*, along with a caption imploring readers to send in their own magazine scans. There is an implicit understanding that an appreciation of the game's history and significance should come not only from facts about its development or a description of its gameplay, but also from the discursive materials that accompanied its release and shaped its "imaginary" contexts (Nicoll 2015). In fact, in its curation, this article and others like it seem to follow what Graeme Kirkpatrick (2015: 68) calls the comic book-like aesthetic of gaming magazines from the 1990s. Screenshots, box art, fan art, hardware and the author's personal testimony are all treated as equal components that together form an impression of the game as a "total object" (Guins 2014: 113).

That sites like "Hardcore Gaming 101" are experienced as dream spaces relates to their capacity to function not only as repositories of information about the Saturn's history, but also of more vernacular forms of storytelling. The objective distance of "professional" history is often substituted for a more self-reflexive and colloquial style of writing. The site "Segagaga Domain" (n.d.), for instance, is mostly composed of player reflections about different Saturn games, rather than information about their development or design history. The site's software database is rigorously (and somewhat obsessively) catalogued. Each individual entry contains personal reflections on the quality of the game as well as any important information that might be useful for visitors (for example, details about language barriers for imports). Of particular interest, however, is the "Miscellaneous" section of "Segagaga Domain" – a space for "cool stuff that doesn't really fit in anywhere else on the site". In the spirit of the vernacular web, this section instructs the visitor to follow a set of links that lead to different sections of the site. One page analyses promotional materials surrounding various Saturn games, whereas another discusses the best places to shop for retro Sega hardware and software in Japan. Vernacular memories and histories are also important for "Dave's Sega Saturn Page". This site's editorial section, which was written by both editors and long-term readers of the site from 1997 to 2001, provides an important documentary record of the state of the gaming industry in the 1990s from a fan perspective.

The 1990s was, indeed, an uncertain decade for Sega. The company's North American subsidiary struggled to sell the Saturn to a Western audience, and perhaps as a result of this, rumours of internal divisions began to surface. At the 1997 Electronic Entertainment Expo, the then-president of Sega America, Bernie Stolar, infamously declared that the company's future did not lie with the Saturn. Right from the

beginning, the editorials on "Dave's Sega Saturn Page" focus on the question of the Saturn's bleak future. Many contributors lament that the platform has gone under-appreciated in the West, and express their frustration at Sega's business and marketing decisions. Some even provide prescriptive solutions for how Sega could regain market control, pointing to promotional campaigns, software release schedules and retail prices as the main areas where the Saturn could be improved. By 1998, however, most users have accepted the platform's failure, and are now turning their attention to the Saturn's successor, the Dreamcast. The editorials begin to resemble obituaries; spaces where fans share their memories of the console and express their sadness about its "passing". One writer (O'Sullivan 2001) reminisces about playing the iconic game *NiGHTS into Dreams…* (1996) on a Saturn for the first time in Villa Park, Illinois: "[i]t was an experience i [sic] can remember vividly to this day, and I immediately was in love". In an editorial entitled "Saturn, I'll Miss You" (Knapp 1998), another writer reflects on some of the Saturn's "unnoticed" and more unique design features, such as the fact that game saves could be stored on an inexpensive lithium-ion watch battery. "[A]nother victim to obscurity", he writes.

The academic writing on videogames is just beginning to investigate the processes involved in preserving these sorts of player memories and histories, as opposed to the more familiar enterprise of preserving material hardware and software. Scholars like James Newman (2012) even go so far as to argue that software preservation is a lost cause for games. Instead, he says, we should turn our attention to the more pragmatic goal of documenting player experiences, or what Stuckey et al. (2013) call "popular memories". Newman (2012: 160) sees this as a "shift away from conceiving of play as the outcome of preservation to a position that acknowledges play as an indivisible part of the object of preservation". In their curation, the Saturn fan sites (and, indeed, most videogame fan sites) have always been concerned with the documentation of popular memories. They are dream spaces where people come together and share stories about their memories of the Saturn, reminisce about how they experienced the games as children and reflect on what matters to them now personally about the console. As a form of storytelling, popular memory is profoundly vernacular in nature. To a large extent, it corresponds to what Gaynor Kavanagh (2000: 116) identifies as a "movement from object-centred history museum practice to one working more flexibly with meanings and memories". It is somewhat surprising, then, that more museums are not drawing on these vernacular forms of storytelling in their curation of gaming history. As Patricia Galloway (2011: 72) asserts in an article on the history of micro-computing, "cultural institutions need to open their doors to the interests and expertise not only of historians, but also those who have personally lived and experienced the microhistory of personal computer culture".

It is clear that a more productive exchange between fan communities and cultural institutions is warranted. The question, then, is how to negotiate the private dream space of popular memory in the public space of the museum? In an article on women's memories and television reruns, Lynn Spigel (1995: 21) writes that popular memory is valuable because it offers a more "playful" alternative to professional history; it "acknowledges its subjective and selective status". Popular memory is, in other words, popular for a reason: it does not aim to give an "objective" or "accurate" picture of the past, but something more immediately tangible in the present. In the context of fan sites, this need for tangibility gets expressed as a kind of "archive fever" (Derrida 1996) that is closely bound up with what Jaakko Suominen (2008: n.p.) calls "product-making nostalgia". In other words, some sites are less interested in historicising the Saturn and more concerned with cultivating collector or "investment" communities: what games to buy, where to buy them from and how much they are worth. This kind of activity has the effect of imbuing old Saturn games with fresh exchange value, thus drawing fan practices more closely into the circuit of consumption (Hills 2002: 35). Of course, information about where and how to acquire old Saturn games may be useful, but it can also compromise genuine efforts to preserve the console's history. Furthermore, given that most of the fan sites are usually authored by a core group, there is also the risk that popular memories may become "dominant" or unchallenged memories (Spigel 1995: 22). Perhaps what is required, then, is a form of curation that brings popular memory and professional history into "dialectical tension" so as to "explicate the biases and blind spots of both" (Spigel 1995: 33).

Pragmatic Space

In his discussion of pragmatic space, Annis (1986: 170) makes an important observation: visiting galleries and museums is not always a solitary or even serious activity, but often a means for social interaction. In this context, museum objects function less as historical artefacts and more as "'conversation pieces': entry points into realms of more important human concerns" (Annis 1986: 170). The Saturn fan sites are, in many respects, spaces for social connection before they are spaces for documentation and preservation. Moreover, they seem to recognise that writing and appreciating history is not an activity to be carried out in solitude, but is instead a social and community-driven process. Forums and comment sections are pragmatic spaces that encourage visitors to take a more collaborative approach to curation and collective storytelling. They are a locus of "vernacular relational aesthetics" (Burgess 2007: 180) in the sense that the "object" of the experience lies not only in what Claire Bishop (2004: 61) calls the "detached opticality" of appreciating the historical content, but also in the "intersubjective relations" of

collaboration and community participation, where the cultural meaning of the Saturn is elaborated collectively.

The site "Racketboy" (n.d.) is one such example of a community where vernacular relational aesthetics play an important role. Describing itself as a "guide for a retro gaming lifestyle", the site contains numerous articles and guides on most major (and marginal) gaming consoles from the past three decades, including the Saturn. An example is the site's guide to shoot 'em up (or "shmup") games for the Saturn (BulletMagnet 2011). The Saturn played host to many high-quality arcade ports of shoot 'em ups such as *Radiant Silvergun* (1998), *Batsugun* (1995) and *Sōukyūgurentai* (1997), in addition to some platform exclusives. The guide goes into depth about the quality of these ports, the mechanics of each game, and how much one should expect to pay for them on the second-hand market. Below the article, many visitors have contributed comments that range from the complimentary ("This list has become my obsession and holy grail. Thanks for giving a purpose to my collecting habits") to the critical, highlighting historical inaccuracies or points of contention ("Nice article, but please refrain from using the term 'shmups' and use 'shooters' instead"). To borrow Burgess's (2007: 140) terminology, there is an element of "productive play" at work here, "that rewards both creativity and social interaction". Playful participation, either by contributing articles or commenting on the contributions of others, is a large part of what makes the curatorial experience rewarding.

Bulletin board forums, along with comment sections, also serve as an important petri dish for collaboration and social learning. On sites like "Hardcore Gaming 101" and "Racketboy", visitors are often invited to use the forums to share their thoughts about particular articles, or engage in more extensive discussions about topics related to the Saturn and its games. But the forums also have a more pragmatic function; they are spaces for visitors to seek advice and help, often of a technical nature. At the time of writing, there are several active threads on the "Racketboy" forums addressing various Saturn-related technical issues. For example, there is one about how to repair the console's laser, another addressing CD drive issues more generally and a third that discusses the best way to play the Saturn on an LCD television (cathode ray tube [CRT] televisions are generally preferred for retro-games, but fans have developed numerous techniques in order to recreate the visual aesthetic of CRTs on LCDs). Asking questions and contributing answers on the forums is seen as an important form of participation in and of itself.

In addition to forums, several sites maintain dedicated sections for repairs, technical walkthroughs and guides on how to mod or hack the Saturn. The guides, such as those found on the site "Segafans" (n.p.), provide step-by-step instructions on, for example, how to open up the Saturn and install a region free Basic Input/Output System (BIOS), so as to allow the console to play games from different regions (the console

is region-locked otherwise). The region free BIOS guide ("Sega Saturn Region Free Bios" 2012) contains many photos of the modification process, in addition to occasional warnings for trickier steps that involve soldering or prying components from the circuit board ("be VERY careful not to damage the board"). Beyond their instructional purpose, these guides also seem to function as a way for users to perform "gaming expertise" and demonstrate their "craftsmanship" knowledge of the console and its technical make-up (Toft Nielsen & Nørgård 2015). From the perspective of relational aesthetics, it is hardly surprising that these kinds of "performances" have a powerful curatorial function. As Garnet Hertz and Jussi Parikka (2012: 426) argue in their article on "zombie media", DIY practices of opening up and tinkering with old media technologies are increasingly becoming a "key tactic of contemporary art practice". The demonstrative practice of cracking open consoles and showing how they can be modified blurs the lines between fan, archivist and "artist-engineer" (Huhtamo 1996: 243). The mere presence of these guides also poses an important challenge to the progressivist ideologies underlying the relentlessly "new" and always "working" culture of digital games: how can old and broken consoles be reused, repaired, or repurposed beyond their prescribed expiration dates? And what role does collaboration play in this process?

Clearly, these guides serve more than a purely practical function. They also communicate something of the Saturn's technical materiality, as well as the hobbyist skills required to repair it. In his book *Game After* (2014), Raiford Guins suggests that the process of repairing broken videogames could take on a more prominent role in the curation of gaming history. In exhibitions, it is not uncommon to see broken games labelled "out of order", suggesting that their use value is limited to their function as fully operating, playable objects. "Instead of speaking of *antiques*", writes Guins (2014: 141), "a word that often signals 'hands-off', why not reposition the games as demonstrative installations whereby visitors can observe and learn of the repair process and specialised skill set required to support these ageing machines[?]" The Saturn fan sites point in useful directions for a curatorial language that speaks not only to the history of its object, but also to the vernacular relational aesthetics of collaboration and DIY practices.

Cognitive Space

Cognitive space is perhaps the most intelligible of Annis's triad of museum spaces: it refers to a curator's direct and intended communication with a museum visitor. Unlike dream or pragmatic space, cognitive space is rational, ordered, and educational in its curation. But as Annis (1986: 170) notes, cognitive space is not likely to be experienced sequentially since visitors usually choose their own path through museums based on "interests,

background and immediate field of vision". In this sense, the most rational components of the fan sites – those that are experienced as cognitive spaces – are the sections that compile various facts about the Saturn and its games. These facts are comprehensive and often quite esoteric in their detail. "Satakore", for instance, has a whole section dedicated to documenting the model numbers, box barcodes and pack-in-games of various Saturn consoles that were released around the world. My discussion of cognitive space, however, will not go into detail analysing these components of the sites, but instead looking at the methods of documentation and preservation surrounding a single Saturn videogame: *Sonic X-treme*.

Planned for release in 1996 but cancelled by Sega in 1997, *Sonic X-treme* was to mark Sonic's first appearance in 3D and, as such, it was marketed as a flagship product. It is a textbook example of a company engaging in "vaporware" – the business practice of preannouncing an incomplete software product in order to mislead consumers into believing that the product is further along in development than it actually is (Bayus, Jain, & Rao 2001; Hodges 2015). This has the effect of encouraging consumers to wait for a product that may never actually see an official release, as well as deter them from purchasing comparable products from competitors. Since the mid-2000s, several fan sites have been dedicated to the project of reconstructing *Sonic X-treme* from fragments of source code and recovered design documents.

In both official and unofficial discourses, *Sonic X-treme* is frequently viewed as a game that could have elevated the Saturn to the cultural and economic status of its competitors as well as alleviate Sega's somewhat dire market position. In an interview with the game's producer in the July 1996 issue of the *Official Sega Saturn Magazine* ("X-Pect the X-Treme", 1996), the producer is asked how *Sonic X-treme* will "measure up to something like Mario on the NU64"[1], and he responds by exaggerating the graphical and design innovations of the game, before promising a European release in autumn 1996. According to Chris Senn ("Sonic Xtreme FAQ", 2013), a former member of the *Sonic X-treme* development team, the reason for the game's cancellation was a combination of "[l]ack of experience, poor business decisions, ego, politics, over-ambition, bad timing, [and] poor communication". The cancellation of *Sonic X-treme* is often seen as a key reason for the Saturn's failure and, more broadly, Sega's destabilisation in the 1990s. As evidenced by several editorials from "Dave's Sega Saturn Page", many fans ascribed an almost messianic potential to the game, and were subsequently disillusioned with Sega following its cancellation. The mythical status of *Sonic X-treme* has, in part, inspired fans, bootleggers, collectors, and former employees to collect and piece together various development assets surrounding the unreleased title.

What curatorial techniques are used when the object of preservation is neither hardware nor software, or even an experience, but vaporware?

Naturally, when attempting to historicise an object that does not technically exist and was never properly experienced, the curatorial process needs to be rigorously organised and, of course, intensely collaborative. "The Sonic Xtreme Compendium" (n.d.) (SXC), a site established and operated by Chris Senn (mentioned previously), serves as the central archive of *Sonic X-treme* development assets. The site was established in 2006 as a repository of leaked *Sonic X-treme* design documents, concept art, test levels, storyline details, music and video files and various textures. Former employees, such as Senn himself, have contributed these materials to the site. Unfortunately, at present, many of the links on the site are now dead. Screen captures and backups of earlier versions of the SXC are available from the "Sonic Retro" wiki ("Sonic Xtreme Compendium" 2013), and they reveal a site that was, in its day, much more routinely updated and plentiful than it is now. It is important to note that the SXC is not the only fan site in danger of becoming transitory and ephemeral – many Saturn fan sites (particularly the older, more specialist ones) are now "dead" in terms of activity, or exist only because a core group of fans have worked to archive them.

Much of the important historical work surrounding *Sonic X-treme* has now moved to forums, such as the "Sonic Retro" forums and the SXC's own "Senntient" forums. In 2014, an archive of original *Sonic X-treme* source code surfaced, which enabled forum contributors to begin work restructuring a playable version of the game. Fans supplemented the incomplete source code with modifications based on knowledge of what the game was meant to look and play like, and a first build was subsequently released in February 2015. On the "Sonic Retro" forums, some fans have expressed concern about over-interfering with the original source code archive in this way. In a thread entitled "Assembler Games member has sonic xtreme POV stuff", one user asks a provocative question: "[i]s anyone worried about losing the 'original' state of the game though? It will be fun to play but how much of the game has been 'fixed' or 'added to'?" (Vangar 2015). Another user responds with the following post: "to be honest it has to be patched up to even function, I would prefer playing that, with the unusable mess in a friggin museum/file archive purely for archival's state" (Chimera 2015). In this context, fans are charged with the irreconcilable task of recreating *Sonic X-treme* while preserving its authenticity as an incomplete piece of vaporware. Their practices are concerned not so much with how the past should be remembered, but more with how the past can be actively intervened in and recreated in the present. This incentive to recreate rather than remember carries with it a politics of preservation that calls to mind the role of conservation in museums – at what point should a fragmented, broken or incomplete art object be left "as is"? And what constitutes an "authentic" experience of such an object in the present? Perhaps these are questions that curators of videogame

exhibitions will need to begin incorporating into their practice at some point in the future.

The practices of remembrance and revival surrounding *Sonic X-treme* can be usefully summarised in relation to the four modalities of nostalgia described by Natasha Whiteman (2008: 45) in her analysis of fan responses to *Silent Hill 4*: *explore*, *repeat*, *mod*, and *spectate*. For Whiteman (2008: 32), these four modalities form a model for thinking nostalgia as a relational phenomenon. The first modality, *explore*, refers to the desire to both return to and actively seek out a "fixed game universe". In the context of *Sonic X-treme*, fans *explore* the possibility of a fixed universe by piecing together various fragments of source code, concept art and design documents. They also speculate about how the Saturn's fate could have been different if the game was completed and released. The modality of *repeat*, however, ensures that this search for a fixed universe will always be fruitless. Regardless of how much original source code surfaces, a complete version of *Sonic X-treme* will always be out of reach. It is this "impossible desire to re-experience something lost" that fuels much of the activity surrounding the game's attempted revival (Whiteman, 2008: 46). Fans will, however, continue to *mod* the game in order to fill in these missing gaps of source code. As mentioned in the previous paragraph, modding is a source of contention. Some fans believe that the *Sonic X-treme* file archive should be left "as is", whereas others argue that it should be developed into a playable game. Here, the role of the fan/amateur historian overlaps with that of the designer/programmer. In contrast to *mod*, many fans will simply *spectate*, which in Whiteman's definition means that they are content to follow the "official" development of the Sonic universe, and are not overly preoccupied with the past. Of Whiteman's four modalities of nostalgia, the "repeat" and "mod" facets seem to be the most pertinent to the *Sonic X-treme* project. These concepts emphasise that nostalgic fan practices are not always evidence of an inability to move forward. Although fan attempts to modify and recreate the game are largely fuelled by nostalgic ambitions – a longing to return to a place that never existed – they also bespeak a much more progressive incentive to re-envision the past in the present.

One of the common criticisms levelled at game exhibitions is that they privilege interactivity over genuinely educational content. Playable games are often exhibited alongside minimal cognitive content – often just a plaque detailing key historical details like release dates, designers, genres and so on. This is problematic because cognitive appreciation of a game *could* occur on multiple levels. To borrow Annis's (1986: 170) writing on museum objects more generally, a game

> may be thought of as a product of a particular culture, a product of a place, a product of a time, a product of a level of technology… an art object, a thing made of specific materials, a thing like or unlike something else, a collectible thing, a thing worth money, a photogenic thing.

A game is, in other words, not just a thing to be engaged with on a playful level. As Annis writes, "[s]tripped of the endless cognitive contexts into which it can be placed the artefact itself is dull" (Annis 1986: 170). As I mentioned at the beginning of this chapter, exhibitions like "Game Masters" have attempted to address this issue by contextualising games within a wider cognitive network of design documents, concept art, oral histories and so on. The Saturn fan communities have used similar curatorial tactics in their revival of *Sonic X-treme*. But they also look beyond software and hardware towards the challenge of historicising and recreating a piece of vaporware. And crucially, it is not just the final build of *Sonic X-treme* that has curatorial value. Just as important is the *process* of rebuilding *Sonic X-treme* itself. Fans heading the project provide frequent progress updates on forums, thereby making the whole process completely transparent and open to community participation. Here, the ordered rationality of cognitive space coalesces with the relational dimension of pragmatic space. For museums, fan projects like the *Sonic X-treme* revival could be framed as open-ended installations that highlight the relational processes of conservation at work in online communities.

Conclusion

It is worth reiterating that the Saturn fan sites are successful not only because they effectively synthesise dream, pragmatic and cognitive space. As I mentioned at the beginning of the chapter, fan curation also benefits from a gift economy of collective knowledge production that is unsullied by institutional constraints. For this reason, it would be unrealistic for galleries and museums to simply import techniques of vernacular curation into their institutional spaces wholesale. Instead, I suggest that curators strike up a more rigorous dialogue with fans to learn from their techniques. First, as I discussed in the section on dream space, videogame exhibitions could experiment more with mixing popular memories with professional history. The curation of player memories and experiences is proven to be an effective method for appreciating videogame history in a vernacular context. In a gallery setting, it could be a fruitful way of generating interest in videogame history for people who are unfamiliar with games or find the culture alienating. Popular memories could also add a new dimension to the experiences of people who are already well acquainted with videogame history. Second, the relational components of fan sites could be productively incorporated into exhibition spaces. This could mean including, for example, workshops that demonstrate how to fix or preserve broken hardware, "performative" installations such as speed-runs of particular games by skilled players, and other programs oriented towards community participation and collaboration. Finally, galleries and museums could consider including incomplete, unofficial or

even "imagined" videogames and gaming artefacts in their exhibitions. Fan projects like the *Sonic X-treme* revival show how videogames at the margins of history can become springboards for new meanings, memories and practices to take place in the present.

Note

1 "NU64" (Nintendo Ultra 64) was the Nintendo 64's working title.

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12 Unusable Archives

Everyday Play and the Everyplay Archives

James Manning

On November 20, 2014, two Australian-based game developers Matthew Hall and Andrew Sum operating under the company name 'Hipster Whale' released their first mobile game on to the Apple App Store. By January 13, 2015, less than two months later, *Crossy Road – Endless Arcade Hopper* had generated in excess of US $3 million in advertising revenue alone (Paskova 2015). Whilst it is beyond the remit of this chapter to account for the particulars leading to *Crossy Road*'s rapid commercial success, the opening section will begin by describing how certain features of *Crossy Road* reveal a widely adopted set of motifs recurrent in the design and development of for-profit mobile games. Significant here is to recognise how these motifs – developed and deployed to return a profit – also establish and maintain a set of conditions under which numerous video recordings of gameplay are being created as a concomitant part of everyday play.

I will contend it is by paying closer attention to these recordings that the incremental updates and evolutions of a videogame can be mapped. Using *Crossy Road* as my example, I will suggest commercial game developers benefit most from developing videogames that are extensible; designed to accommodate constant and potentially infinite content updates to maintain marketplace viability as a commercialised product cum service. What this means is that a videogame no longer exists in a singular, definitive form; rather, it goes through multiple phases of existence as it is continually modified, altered, revised and updated after its initial release. Accounting for these ongoing changes is a key challenge facing videogame preservation. In this chapter, I intend to present a response to the question: in what ways might these video recordings contribute to a history of videogames?

My argument evolves over three sections. The opening section describes some of the features of *Crossy Road* with reference to the economic, technological and social conditions that have led to multiple videogame playings of *Crossy Road* being recorded. This section stresses the importance of these contexts both in terms of how they regulate practices of design and play, but also in recognition of the challenges they present to preservation efforts. The second section describes digital archiving

practices in relation to both institutional and community-driven collections of videogame play. The third and final section details the 'incidental archive' generated by the everyday playings of *Crossy Road* captured through Everyplay, the integrated video screen-capture and sharing service embedded within the game-engine used to develop *Crossy Road*. I compare this content with other video- and performance-based archives to identify the ways in which it already performs as an archive. In conclusion, this section acknowledges some of the challenges of working with these resources and suggests potential ways to address these concerns as an indication of where future work is needed.

Endless Play, Every Day

Crossy Road has a simple objective: swipe or tap the screen of your mobile device to guide your player-character (a chicken as default) as far as possible across a procedurally generated, axonometric projection of a landscape fraught with obstacles and environmental hazards. Timing is key as you hop across traffic-laden roads, log-filled rivers, tree-lined fields and railway lines, pressured into acting quickly to stay within the screen as the view steadily creeps forward. Hesitation results in a giant eagle swooping down to carry you away. Mistiming a jump by landing in a river or colliding with a moving vehicle ends the game.

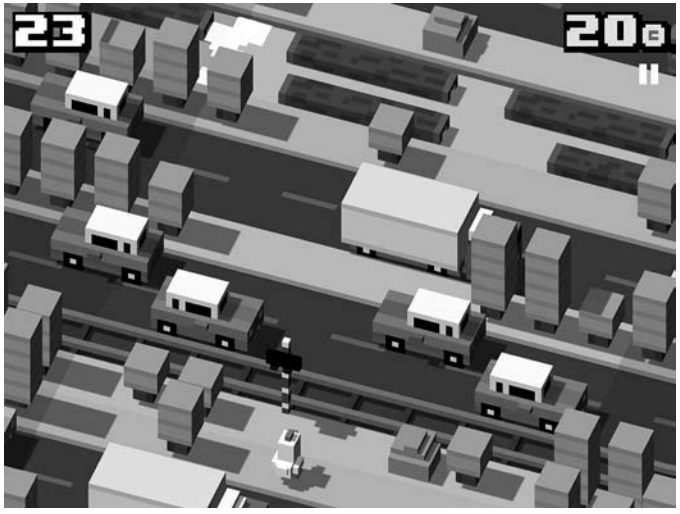

Figure 12.1 A chicken contemplates her next move. Apple iPad Air 2 screengrab of *Crossy Road – Endless Arcade Hopper* version 1.3.8 updated February 12, 2016. Trademarks and images from the game *Crossy Road* appear courtesy of Hipster Whale Pty Ltd, all rights reserved.

Crossy Road is available as a free to install, downloadable application more commonly referred to as a 'free-to-play' game or app. Anyone with a valid Apple ID can install the game onto their device for free[1]. As is commonplace, *Crossy Road* integrates Game Center, Apple's native social gaming network service. Two of its built-in features, Leaderboards and Challenges, allow players to asynchronously and remotely compete for the highest score against both their connected friends and on a global stage ranked against all other registered players. Players can also choose to challenge their friends directly. Upon your character's death, a 'polaroid' screenshot captures the moment of your demise plus a record of your total distance travelled. Players have the option to share these images with others as testament to their accomplishments (or lack thereof) via integrated social network platforms such as Twitter or Facebook.

The ability for users to share and distribute content relating to the game is commonplace within mobile game development, a specific example of a broader set of trends in contemporary media production. Henry Jenkins labels this a 'participatory culture' where 'fans and other consumers are invited to actively participate in the creation and circulation of new content' (Jenkins 2006, 290). Designed to make the most of digital networks, creating a sense of belonging to a wider community of players has long been a central motif within videogame development (Newman 2008, 41). Videogame developers have tailored their production methods to generate multiple opportunities for participants to create and share 'spreadable' content to maintain marketplace viability (after Jenkins, Ford, & Green 2013).

Crossy Road is no exception as it is designed to benefit from these broader cultural practices that strive to establish and maintain networks of 'user-circulated content' (Jenkins et al. 2013, 15). Under the logic of free-to-play, where access to the initial product is granted for free, monetisation strategies for turning 'players' into 'payers' become central (Lovell & Fahey 2012). As such, game mechanics are often designed to habituate players to the particular demands of the game, creating multiple and frequent opportunities for players to invest time, effort and ultimately capital into the game (Keogh 2015, 157; see also Juul 2010, 36–38). The ability for users to generate and circulate content is an important part of this process, to feel connected and establish a sense of belonging to a wider community, built upon the preconditions of social media paradigms and distribution technologies.

The recent and widespread adoption of free-to-play development strategies have, at their core, shifted emphasis away from delivering and distributing videogames as one-time payment 'boxed' products. The normalisation of digital distribution coupled with microtransaction payment schemes enables developers to adopt 'games-as-service' models instead, to deliver new content over time incentivising players to keep playing (see, for example, Walker 2014). Under such logic, the

more content distributed the longer the 'shelf-life' of a videogame and the greater the profit potential.

Since release, *Crossy Road* has received multiple updates expanding the playable roster by introducing numerous additional characters and accompanying contexts[2]. For example, during the United Kingdom and Ireland update released April 1, 2015, 17 new characters were introduced, three of which were secret, alongside new car hazards in the form of double-decker buses and black cabs (UK & Ireland Update 2015). Whilst playing as a character from this set, the environment is rendered using a desaturated palette, sometimes clouded over with added rain effects. To unlock one of the secret characters, players must complete additional, hidden tasks. To unlock the Leprechaun for example, players must find and collect a four-leaf clover.

Whereas most of the additional content may bring about only cosmetic changes, two more recent updates have significantly altered the gameplay itself. In both cases, new characters introduce new play modes and scoring systems leading to the inclusion and implementation of two new global leaderboards. Each update brings with it, quite literally, 'game-changing' content. For example, version 1.3.1 – released August 22, 2015, to coincide with the launch of Hipster Whale's second 'game-as-service' – adds Pac-Man to the character roster (Pac-Man Update 2015). The playing field now changes to one inspired by the arcade classic: blackened landscapes with pulsating neon structures, with the normal lanes of traffic replaced by traversing ghosts. The scoring mechanic also changes to reflect its inspiration with 'pac-dots' appearing throughout the level and 'power-pellets' providing Pac-Man with the temporary ability to eat ghosts. As in the original *Pac-Man*, score is now allocated for eating objects, rather than by distance travelled.

Significantly, each release not only alters the play of *Crossy Road*; each update also supersedes previous versions of the game, creating a significant problem for archivists. As with the majority of other born-digital, 'complex digital objects' (Langley 2011), videogames pose a very particular and difficult set of questions: not only *what* should be preserved and how best to preserve them, but also – given the points raised previously – how to capture the *when* and *where* of any given videogame as it moves through its multiple phases of existence. Despite the various ways videogame development practices have been adopted and adapted in recent years, one thing remains constant: the rapid succession of perpetual changes distributed via often undetected and always-connected networked infrastructures problematises any straightforward solution to the preservation of videogames (see, for example, Guttenbrunner, Becker, & Rauber 2010; Lowood et al. 2009; McDonough, Olendorf, & Kirschenbaum 2010; Newman 2012a). As the case of *Crossy Road* demonstrates, the potentially infinite 'lifecycle' of a free-to-play videogame – where development continues long after

its initial release – only serves to compound these issues further. From the point of view of the player, updates bring desirable new content to the game: adding new characters to unlock and creating new situations where additional money may be spent. From the perspective of an archivist, however, all these changes and the likelihood of future changes are of significant concern. Clearly, free-to-play games require an alternative approach to preservation; this chapter puts forward one such alternative.

For James Newman, videogames are 'unstable objects' (2012b); their plasticity leads him to consider complementary approaches to videogame preservation emphasising, as he does, 'a shift from game preservation to game*play* preservation' (2012a, 38; original emphasis). Here I consider one such example focussing on 'documenting games *in* and *at* play' (Newman 2012a, 38; original emphasis). My contention is that the economic, technological and social conditions under which *Crossy Road* continues to be developed and consumed – the desire for new content and subsequent deployment of technologies that facilitate the 'spreading' of its content – have led to the formation of what is ostensibly an 'incidental archive' of *Crossy Road* playings.

Unity, the game engine used to develop *Crossy Road*, has a built-in ad-streaming service called Unity Ads, originally developed by Applifier in 2012, a company later acquired by Unity Technologies in 2014 (Laakkonen 2014). Within this is Everyplay, the 'social replay sharing service' (Laakkonen 2014) or video sharing platform designed to enable players to record, upload and share video files of their gameplay and/or gaming achievements.

At the time of writing, *Crossy Road* had 990,844 registered members and 1,079,181 replays uploaded to the Everyplay website[3]. A casual glance through the recent uploads reveals a range of captured footage, most only a few seconds long, some running into a few minutes. Some are recorded in portrait, others in landscape. Some uploaders demonstrate familiarity with the game whilst others do not. Most appear to record multiple rounds as repetitive as the gameplay is: start, die; restart, die; restart, die again. Some uploads have been retitled whilst others are simply left defined as '#CrossyRoad crossyroad.com'.

This incidental archive of information stands testament not only to the variety of playings, but also – by scrolling down far enough – contains video footage of a game that no longer exists. These are the recordings of a superseded version of the game, one ostensibly removed from public access. Each individual video clip documents a particular playing of *Crossy Road* (not to mention the numerous other games that subscribe to this service). Each document is far from comprehensive, offering a fragmentary impression at best. The videos do not provide instruction that would allow someone to, for example, reconstruct a playable *Crossy Road* from its content. Yet each video allows us to speak of a playing. Each provides a snapshot of the game in its then current state, providing

multiple accounts of how the game was played, what the game looked like and how it performed at a given moment in time.

The videos exist not as a consequence of deliberate archiving (it is unlikely players have created these clips to serve any greater public interest), but rather as a condition of mobile videogame play and the digital, mobile and social media cultures that this form of play is most obviously a part of. Nevertheless, in combination, these traces of play create a timeline upon which the incremental updates of *Crossy Road* are represented. To help inform a consideration of the archival merit of this collection of recordings, the next section describes digital archiving practices in relation to institutionally driven and community-based collections of videogame play.

The 'Unusable' Archive

Whilst the word 'archive' has been used to refer to a great number of different things – artefacts, collections, institutions, processes – within a range of different contexts, many of the developments within archival discourse over the past 30 years emanate from two influential paradigm shifts: postmodernism and the development of digital technologies (Manoff 2004, 10). An instructive way to acknowledge these changes is to consider the shifts in perception regarding the role of the archivist (Nesmith 2002, 27). Traditional views of the archive maintain that the archivist's role was to 'simply document or mirror the world around [...] them in a neutral, inconspicuous and simply factual way' (Nesmith 2002, 27). Such views conceive of the archive as a self-effacing, impartial and immobile nonentity, merely a storage facility for inert and physical things. Archival records were assumed to provide unmediated access to the past.

Postmodernist views on communication, however, dispel any such belief. Influential here is Derrida's notion of 'archivisation' (Derrida & Prenowitz 1996), emphasising how archival *processes* give shape to the events they record. As such, archivists become *active* agents in the ongoing processes of creating and maintaining archival records (Cook & Schwartz 2002, 183). If archival records grant us access to the past, then our knowledge is mediated through the archival processes that make such access possible. As Tom Nesmith contends, '[t]o the extent that an object (or record) can be known at all, it can only be known over time, as it goes through these processes of contextualization and recontextualization' (2002, 36).

Within traditional literary culture, deciding what should be remembered and how best to remember it was determined by the official memory institutions (museums, archives, memorials) of the time, built to promulgate the dominant ideologies of the ruling elite. As Ekaterina Haskins suggests, 'public memory was constructed and disseminated

for the people but not *by* the people' (2007, 403 after Gillmor 2004; emphasis added). Digital technologies, and the Internet in particular, promise new forms of cultural remembrance, ameliorating the hegemonic tendencies of traditional 'top-down' archival practices through the democratisation of community exchange and 'bottom-up' cultural production (Haskins 2007, 405). Through digital networks, digital archives encourage wider participation. Whilst there are many forms of digital archives (see Anderson 2008), one promise of the digital archive is that it permits its users to contribute to the creation and modification of its records. Digital archives are thus thought to reflect a wider range of cultural production and social values.

To reflect this shift in cultural knowledge production, Isto Huvila (2008) conceives of a 'participatory archive' where curatorial responsibilities are shared between archivists and users alike. Within such an archive, records can be created and modified by both parties indiscriminately, each modification recorded as part of the archiving process itself (2008, 25). Such archives are thought to capture a multiplicity of viewpoints that contribute to the future formation of individual and shared understandings of the archival materials maintained (2008, 18).

One recent notable 'participatory' archive deployed to solicit community involvement is the *Popular Memory Archive* (PMA) built as part of the Play it Again project, focussing on exhibiting materials pertaining to digital games produced in Australia and New Zealand during the 1980s (Stuckey et al. 2013). The PMA draws upon the vibrancy, integrity, and richness of resources amassed by ancillary bodies, the collective memories of the developers at the time, and communities of players, fans, and hobbyist collectors (Stuckey et al. 2013; Stuckey & Swalwell 2013). Further, by exhibiting online and within a social-media enabled discussion environment, the PMA invites participants to extend and contribute their knowledge, memories and artefacts to the archive (Stuckey et al. 2013). Central to the concept of the PMA was to see records of both artefact *and* experience as integral to the recording of videogame histories (Stuckey & Swalwell 2013, 529–530). Describing such an approach here provides an opportunity to make explicit the value of inculcating 'fan knowledge' within videogame preservation (Stuckey et al. 2013).

If earlier formations of the archive were concerned with the freezing of time – to store and preserve – then archives in digital media culture can be re-conceptualised as 'archives in motion' (after Røssaak 2010). For Anne Burdick and colleagues, and as the PMA demonstrates, digital archives become 'animated' through their use, their continued existence premised on the *liveness* of connections made possible by the affordances of social media platforms (Burdick et al. 2012, 47–48).

James Newman assesses the archival value inherent within community-generated accounts of 'expert' gameplay (Newman 2011). He argues that the prevalence of 'game guides', 'cheat sheets' and 'walkthroughs'

hosted on dedicated player-created websites such as gamefaqs.com and wikia.com provide rich, detailed descriptions of the content discoverable within videogames, developed by and for the gaming communities of which they are part. As such, these documents are critical resources that attest to the multiple ways videogames are played and, in many cases, how videogames are exploited to provide the most efficient and effective means for players to obtain 'hidden' content, discover secrets, and access shortcuts. Additionally they operate as sites of 'fandom', celebrating displays of mastery, skill, and in-depth knowledge prevalent within the formation and continuation of these player-driven communities (Newman 2011; see also Newman 2008, 91–122).

The importance of community can be evidenced in other recordings of videogame performances. Henry Lowood (2006) draws a history from the nascent (at his time of writing) practices of 'machinima' through the associated activities of 'speedrunners' where players subvert the intended use of multiplayer games like *Quake* (id Software 1996) to record the fastest run through a particular level. Not only does Lowood describe the emergence of videogame spectatorship introducing the notion of player-as-performer (2006, 30), but also how essential community networks were in the development and dissemination of this 'high-performance gameplay' (2006, 38). These networks became an arena where the virtuosity of both player and programmer were displayed and celebrated. Essential to both practices is the development and sharing of tools, techniques, and technologies developed by and for the communities involved.

When considering such records of gameplay as potential participatory archives, the apparent democratisation of the processes involved in their creation should not be overstated. Social media-enabled archives may alter the bureaucratic and centrally governed 'walled' nature of accessing and storing information, moving as they have done towards a distributed and software-based mode of interaction. Yet 'the power still resides in the archive, which is now embedded in architectures of software, and the political economy of social media platforms' (Parikka 2012, 115). Where the data are physically stored, the server that hosts and maintains the data, and who has what kind of access, are factors often governed by influences outside of any given community's control. Furthermore, for Haskins, '[w]hen technology offers the ability of instant recall, individual impulse to remember withers away' (2007, 407). In light of the deluge of information competing for our attention daily, when we are unsure of what to save, we save everything. Our digital technologies and social media practices enable a form of self-memorialisation writ large (2007, 407). Whilst the 'burgeoning dossier' of data captured may well present a 'multiplicity of perspectives', this does not automatically translate into a 'usable past' (2007, 419). There is a distinction to be made here between acts of storing and acts of remembrance.

Our tendency to want to save everything represents a 'disappearance of a historical consciousness' (Haskins 2007, 406). What is archived is *unusable* unless additional commemorative resources are forthcoming. As Haskins observes, additional mechanisms must be developed to 'stimulate participatory engagement', (2007, 407) and to encourage audiences to take the time to 'explore views different from their own' (2007, 419). It is with these thoughts in mind that I return to a discussion of the Everyplay archive.

Everyplay Revisited

As noted previously, the video traces hosted by Everyplay constitute a timeline representing the incremental updates of *Crossy Road*. They provide evidence of the way the fabric of the videogame has changed – and continues to change – as observed *during* gameplay. Yet the Everyplay website is a destination not a source: it has been built to facilitate the recording and sharing of gameplay, not to facilitate the sorting and retrieving of its content, nor to bear witness to a videogame's development. By default, whilst its content is displayed chronologically, accessing any particular video – or attempting to navigate anything but the most recent set of uploads – is far from straightforward. The built-in search function is rudimentary retrieving only games, users or videos by title alone. Alternatively, videos can be ranked by 'hotness' as popularity is also tracked. However, popularity is determined by the 'virality' of a video clip and is no measure of its value as either a historical document nor as an exemplar of significant change. One of the most shared video clips of *Crossy Road* is only one-second long, revealing nothing more than the Dark Lord character in situ with the on-screen record-button being depressed (Everyplay 2015).

Everydayness

Everyplay captures *every* play (well, almost). Whereas traditional archival practice filters content at the point of entry (appraisal), Everyplay's 'flat' architecture – like that of many other online video sharing services – is designed to connect with as many points of access as possible (see Burgess & Green 2009, 90). Everyplay's disinterest in its content is significant. In comparison with collections built to serve a specific community purpose – for example, the recordings of *exceptional* gameplay or 'high-performance play' within speedrunning communities – Everyplay avoids selecting content based upon predetermined values. Important for Everyplay is that *all* of its content is as 'spreadable' as any other situating feats of the dilettante alongside those of the virtuoso. Further, as recording and sharing technology embedded within the game engine itself, Everyplay provides a relatively prosaic and self-effacing means by which

recordings of play can be created and shared with no specialist knowledge or expertise required. As such, Everyplay is well placed to capture en masse recordings of everyday and mundane play. What 'stands out' is the *ordinariness* of each recording.

Commerce

Parallels can be drawn between Everyplay and YouTube in that its features are designed to serve commercial interests first. Jean Burgess and Joshua Green speculate on the potential, unintended nature of YouTube becoming 'effectively a living archive of contemporary culture from a large and diverse range of sources' (2009, 88). They are also quick to concede YouTube is itself an ongoing commercial operation. YouTube's political and ideological dimensions play out as tensions between media industries, content creators and aggregators continue to generate much controversy and uncertainty regarding the use of its content (2009, 90–99). There is little permanence to any video uploaded with no obligation for YouTube to keep anything beyond it servicing commercial – rather than public – interests (2009, 89).

The same concern exists with Everyplay. Given its commercial orientation, coupled with the relatively marginal space in which it operates, it is unknown how long these recordings will remain publicly accessible for: only for as long as Everyplay decides or exists, unless others intervene first. Even the most popular websites and community portals are subject to rapid dissolution as demonstrated by the recent and unexpected shutting down of GameTrailers.com on February 8, 2016 (NeoGAF 2016). In this instance, Archive Team, a collection of enthusiast website archivists, managed to 'save' much of its content through quick intervention. In a Twitter post on February 11, 2016, Jason Scott (@textfiles) wrote, 'Archive Team has pulled down all of the remaining video on @GameTrailers so that's at least a start. (It's about 2.5tb of video.)'

Mute

Everyplay's content is, for the most part, mute. Despite the fact that a small percentage of recordings on Everyplay contain voiceovers and live commentary such as its technology permits, Everyplay is in desperate need of a voice. This is in stark contrast to YouTube. As Burgess and Green note, much of the sorting, selection, and re-aggregation of Youtube's content is carried out elsewhere, within other online community spaces (2009, 88). YouTube's content is repurposed, recontextualised, connected and embedded in other online spaces such as on blogs, within forums, on social media timelines, or in combination, its life extended through the additional contexts – and audiences – these connections bring forth. By comparison, Everyplay's content is rarely used

to present discursive points of view or contribute to any other creative endeavour. Despite its potential virality, Everyplay's content is infrequently 'animated' through interaction, rarely motivated by the interests of other groups or individuals, mainstream or niche. If Everyplay is an archive, then it is an archive that lies dormant and uninterpreted. In the absence of any curatorial work, Everyplay lacks the voice required in order for it to be heard.

Archives of Everything

Recalling Haskins (2007), Everyplay is a 'burgeoning dossier' of messy information. The capacity of digital networks and the technical infrastructure upon which Everyplay and YouTube are built, for example, suggest the potential to hold on to everything – the ability to store *all* uploaded video data. However, even without considering the practicalities of such an undertaking (including responsibility, legality, copyright/ownership), retaining every recording may be far less useful than at first would appear. As Henry Lowood contends, the conception of creating a 'perfect-capture' of a videogame is nonsensical (2011). Focussing his discussion on preserving virtual worlds, Lowood suggests that whilst it is entirely possible to record all the data packets transmitted between each access point – from client to server and back again – such data are of little use without also capturing additional subjective and interpretative accounts to allow for us 'to make sense of the historical record, which is fragmentary and always incomplete' (White 1974, 280 quoted in Lowood 2011, 120). Neither a 'complete' set of data transmitted nor any amount of recordings of videogame play can claim to present the 'perfect' capture – they are only ever fragmentary pieces of an incomplete puzzle.

As mentioned already, there is a significant difference between storage and remembrance. Take for example the GameTrailers.com incident described above. Whereas the remaining data was 'scraped' from the GameTrailers servers – repackaged and rehoused over at archive.org (Archiveteam 2016) – and such an intervention may appear to have 'rescued' its content from extinction, what has been saved is merely the information itself, transferred from one source to another.

Granted, the Internet Archive (archive.org) has been purpose-built to maintain such records over time and, without such timely intervention, it is likely that GameTrailers content would have inevitably been lost. However, even then the permanence of these transferred digital records should be questioned. For what is permanent is not the data stored on the physical substrate of the recording material (the inscriptions written onto the surfaces of a hard drive, magnetic tape, or optical disc), as they too are material objects and therein subject to the same effects of entropy and decay as any other physical thing (see, for example, Monnens et al. 2009).

As Wendy Hui Kyong Chun acknowledges, to assume that digital media provide an ineffaceable record – that digital data can be transferred continually and verbatim, without loss, from one storage space to another, *ad infinitum* – is to overlook the very materiality of the storage system itself (2011, 192). The key characteristic of digital media is not its permanence, but rather its transmission. Digital records are subject to constant renewal, as data is not copied as such, it is regenerated and rejuvenated during continual processes of storage and retrieval (Chun 2011, 197). This 'enduring ephemeral', as Chun suggests, allows us to mistakenly conceive of our computer memories as being more permanent, only 'because they are constantly refreshed so that their ephemerality endures, so that they may store the programs that seem to drive our machines' (2011, 197). Chun describes that the permanent transfer of digital information, rather than providing permanent storage, must be constantly regenerated in order to remain. It is the *transfer* than endures, as its regeneration is its degeneration denied (2011, 197).

What the enduring ephemeral encapsulates is the 'undeadness' of information in the digital age (Chun 2011, 200). It teaches us that whilst digital archives are so much about memory, they have no memory (Chun 2011, 197). By way of example, Chun describes the automated processes behind the Internet Wayback Machine (IWM, web.archive.org) whose Mechanical Turks systematically create snapshots of the code parsed from the websites they visit. What is captured is not a reconstruction of each webpage nor the content embedded therein, rather only the means or code required to reflect the changes made to the webpage since it last visited; 'the IWM preserves only a skeleton of a page, filled with broken – rendered – links and images. These pages are not quite dead, but not quite alive either; the proper commemoration requires greater effort' (Chun 2011, 199).

It appears that both Haskins and Chun would agree that any burgeoning dossier of information does not automatically translate into a usable past. Similarly, Everyplay's content may well present a multiplicity of fragmentary traces of the ongoing development of *Crossy Road* for example, yet without further commemorative acts, no historical consciousness is being generated. From the outset, given Everyplay's commercial orientation and inherent fragility, it appears to make good sense to consider the possibility of migrating Everyplay's content to a more suitable storage solution. However, before we consider the many practicalities involved (who, what, where) and the legalities of performing such an act, carrying out such an undertaking may only take us so far. With that said, if no interventions are forthcoming, then these fragmentary recordings of videogame play will surely disappear.

Everyplay stands in stark contrast to the community-run archives maintained by the speedrunning and walkthrough communities already mentioned, who share interests and a commitment to maintaining

records of contributors. These communities see value in preserving their histories (Lowood 2006, Newman 2012b). Everyplay lacks such a community, and so lacks the investment required to sustain an archive. If, as argued here, there is merit to be found in maintaining these timelines of videogame play as testament to the evolution of a videogame during its 'open' development, then additional resources will be required to render this data in a meaningful – hence usable – way. I offer one possible answer to the question posed at the outset, of how these video recordings might contribute to a history of videogames.

The sheer quantity of videogame recordings means that human textual or semantic analysis of the video recordings would be extremely time-intensive. However, given the affordances of the digital material from which these vast numbers of recordings are made, other nascent forms of humanistic inquiry are now conceivable: the 'digital stemmatics' put forward by Kari Kraus (2009); the various 'knowledge models' described by Burdick and colleagues (Burdick et al. 2012, 30–31); or Lev Manovich's 'cultural analytics' and 'software studies' (2013) to mention but a few of the emergent approaches to reading such large volumes of data. The open-development of *Minecraft* (Mojang 2011), for example, speaks to the multiplicity of critical and interpretative approaches that may be applied to read the game, the gameplay, its recordings, and its evolving status as historical object. Like the example of *Crossy Road*, *Minecraft* refuses to stay fixed in time as a cultural object. *Minecraft*'s early success has been attributed to the uptake of early adopters attracting significant audiences to the game's potential through the creation and sharing of video recordings of the game being played (Silverman 2010). Although it may be possible to historicise the development of *Minecraft* by reconstructing each of its many 'soft' releases through serial emulation, it's also not possible to ignore 'chronicles' of *Minecraft* captured in the gameplay recordings circulated by players. It is important to also conduct systemic analyses of these recordings as articulations of the game as it is played through its rich and layered gameplay histories. Our critical tools and methods of analysis need to be as open and adaptable as the labyrinthine avenues that playing videogames open up.

Conclusion

If we are to take seriously the idea of preserving videogame play, then, as suggested here, a timely approach would be to consider strategies designed to consult with the timelines of videogames as chronicled in the recordings of videogame play. If each iteration of a videogame supersedes versions prior, rendering them inaccessible or obsolete, it is the recording of each 'displacement' that becomes the record of its existence: not only what the videogame once was, but also how it was transformed. This is where Everyplay and other recordings of videogame play can become

a central resource, documenting each incremental change as evidenced in how the game acts and play is performed. Herein lie the timelines of a videogame's development as it evolves through its multiple phases of existence. These are the documents that require our attention in the hope that by adding new contexts such records and recordings, whilst they may become displaced[4], will also remain.

These video resources are, like any other, precarious: their longevity as accessible content is at risk. The ability to act quickly is important in the belief that through such interactions these archival records will endure, animated through the dynamics of processual reconfiguration as new interconnections are established and new narratives are formed. These are the *usable* archives that require our ongoing attention, both now and in near and distant futures, even when inevitably new paradigms will emerge and new archival methods will take hold.

Notes

1 Since its initial Apple App Store release, *Crossy Road* has been released onto other platforms and is available in a range of other stores such as Google Play and Amazon.
2 At the time of writing, *Crossy Road* has remained within the top 25 downloaded apps listed in the Games category on Apple App Stores across three major territories: Australia, United Kingdom, and United States (App Annie 2015).
3 Observed August 29, 2015.
4 Given the nature of the digital environment in which these traces of play exist, what does the 'disappearance' of a digital record look like? For in digital archives, digital artefacts do not just disappear; they instead become displaced. Adrian Miles has mused on the act of dying in a digital sense, and what the 'death' of a video recording may mean, asking: 'What sort of spectral trail would be necessary to indicate this impermanence, simultaneously memorialising the *loss* that has occurred and the thing that was?' (Miles 2015, 43; original emphasis).

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13 Moving on from the Original Experience

Philosophies of Preservation and Dis/play in Game History

Melanie Swalwell

This chapter begins from the position that game fan preservationists deserve recognition for their efforts in ensuring that historic games and documentation have survived. Retro-game communities grasped the threats to digital games' longevity before the fragility of digital media was widely appreciated. Fans took the initiative and decided to start documenting and preserving games and games-related artefacts long before games were on the radar of most cultural institutions. The work of individual fans and communities – assembling collections of games and documentation, preserving these, developing emulation solutions and discussing historic games – represent highly significant contributions, not only to the remembering of historic games and gaming practices, but also born digital heritage more generally. In a chapter essaying the relationship/s of fans to museums, Helen Stuckey and I (Stuckey & Swalwell 2014) recognise the contributions that fans, collectors and retro-game communities have made to the documentation and preservation of digital games. We consider what scope there is for collaboration between fans and museums, concluding that there are many possibilities for enthusiasts to work fruitfully with institutions, and vice versa.

However, as in any relationship, there are some sticking points, points on which the parties differ. In this chapter, I identify the privileging of the 'original experience' as one such point of difference, noting that whilst this notion is important to some game fans and collectors, it presents problems for critical game historians, preservationists and others involved in curating and presenting game history, now and into the future. Rather than arguing that one group presents a more enlightened view than the other, I identify several different cultures or approaches that are loosely associated with these groupings, namely the game lover, the retro-gamer, and the critical historian or curator. In turn, I lay out some of the conceptions of history and the philosophies of preservation and (dis)play with which each is associated, and seek to untangle some of the different conceptions of originality that are invoked. The second part of the chapter argues that the newly emergent subfield of the history of games – and indeed, that of born digital cultural heritage more generally – needs to move beyond the paradigm of 'original

experience' to ask different questions. How, for instance, might exhibitions of 1980s gaming and computer culture be assembled for future audiences who have no memory of this period? The conceptual model of the Archaeological Museum proposed by net art preservationist Anne Laforet (2007) – which provides fragments and plausible explanations of what the original situation may have been, while maintaining open alternative hypotheses – offers a way to think about how future exhibits might present game history and stage visitors' encounters with historical materials. Noting that the Art Museum – which receives unique items and conserves them – cannot be the model for the conservation of electronic art (Bureaud et al. as cited in Laforet 2007), Laforet canvasses the model of the Archaeological Museum as an addition to the standard strategies of storage, migration, and emulation for variable media. An as-yet-unrealised-project, she says the model could act as a site for the re-interpretation of broken works of art, with fragments of works that could be updated and re-activated in multiple ways. In referencing Laforet's notion of the Archaeological Museum, I seek to move beyond emphasis on the 'original experience', reframing debate by foregrounding principles of reconstruction. Ironically, the documentation and memories that game lovers and retro-gamers alike have assembled and recorded are likely to play a considerable role in such future attempts to imagine what it might have been like to play and/or construct a game on one of the earliest computers (Stuckey et al. 2015).

Lovers of the 'Original Experience'

> *Original, adj. 2a. Belonging to the beginning or earliest stage of something; existing at or from the first; earliest, first in time.*
>
> *Original, adj. 7. Of or belonging to the period in which a work of art was first produced; (esp. of a musical instrument) dating from or of the type used for early performances; period, authentic.*
>
> (OED 2016)

Early games seem to call forth a very strong desire in some people for 'the way it really was', even as these dated media simultaneously remind us of the impossibility of recapturing a past time. A desire for the 'original experience' is strongly evident in much contemporary writing about game history and preservation. We often read accounts of historic game exhibitions, a trip to a specialist arcade, or reports of playing an emulated game in which the author reflects on the experience of play, only to note that it was (or was not) the same as it used to be, just like the original (or not). Nostalgia has been the dominant mode of remembering early games for at least a decade, but this tendency goes beyond what is now quite a widespread longing for retro-games. In what follows, I present

aspects of a discussion between members on the 'game_preservation' list about the demise of CRT (cathode ray tube) monitors, which took place in 2012. The four voices are ostensibly discussing the CRT monitor, the simulation of scanlines and artifacting in emulators, and the differences in monitor types, but throughout the thread a constant privileging of the 'original experience' of gameplay can be discerned.

The discussion began when Devin Monnens forwarded an email from Platinum Publicity bearing the subject 'End of the arcade CRT monitor'. In this email, the company Dream Arcades is apparently spruiking the last 30 CRT units they have in stock. Platinum Publicity seems to think that Monnens might provide them with some coverage of this story. In forwarding the message, Monnens asks whether people on the list were aware of the issues with CRT monitors, before asking, "how does this affect classic arcade machines and the longevity of arcade systems?" Many list members were indeed aware of the challenges. Jim Leonard reported that arcade operators are replacing CRT monitors when they break with LCDs (liquid crystal displays). István Fábián brought up the simulation of scanlines and artifacting, volunteering that: "It is possible to simulate CRT artifacts with sufficiently powerful graphics cards". This turned discussion to the merits of scanlines, with Martin Goldberg opining:

> Scanlines, artifacting, and the like are already simulated in emulators like MAME and various computer and console emulators. Simulation[s of] those effects are always decent but never the same as the real thing.

Leonard meanwhile proffered:

> There is no doubt that the emulation is excellent. However, LCDs don't have the same gamma, curvature, or surface glare that raster and vector monitors have. Whether or not you think that's important is irrelevant; it's what is true and authentic. Proper preservation of any game must take these things into account to some degree.
>
> I think that scanline/mask/etc. emulation is fantastic in general for people who want to get close to what the original experience was like. I myself turn it on whenever I run an emulator. But I would never suggest it is "good enough" as a replacement for the original.

The 'original' and the 'real thing' are repeatedly invoked and privileged in these excerpts, with departures from this deemed inauthentic. Valuation of the original is consistent with the previously cited senses of the original as "belonging to the beginning", and of items "dating from or of the type used" in the period. But what is prized here more than 'an' original is the experience that is said to be had with such an original. Such an

original experience is judged superior to the experience had playing on an emulator, for instance, and terms such as 'authentic' and 'uniqueness' are used by some. Monnens goes on to claim:

> Vector is also not something that can be emulated. You can have the visuals, but you'll never get that same amount of brightness! I always tell this to my students: you have to see an actual Asteroids machine and play it to understand what is so important with vector graphics.

There is an organic quality to the experiences that is invoked here, which resonates strongly with Raymond Williams' discussion of the term 'experience present' in *Keywords* (1983). Williams (1983, 127–128) writes that experience

> involves an appeal to the whole consciousness, the whole being, as against reliance on more specialised or more limited states or faculties … The strength of this appeal to wholeness, against forms of thought which would exclude certain kinds of consciousness as merely 'personal', 'subjective', or 'emotional', is evident … What is important … is that such experiences are offered not only as truths, but as the most authentic kind of truths.

Such appeals to original experience rely on the historic past, that is, of the experiences some of these protagonists have had playing games in decades past, no doubt in specific contexts. This point is made clear in Goldberg's response to Monnens' comment that "playing 1942 on the multicade is not the same as playing it on the actual hardware due to the placement of the joystick and the play on the joystick". Goldberg writes:

> It's a constant argument I've [h]ad with younger generations who[se] only experience with older arcade games are game roms and collections on modern console[s].
>
> I.E. the commoditisation of 'retro-games'. Why do they need to play a single game in a dedicated cabinet when they can simply play all the games like that they want in an emulator … [?] My answer is not much different than why some people still prefer their LPs and their packaging over cds [*sic*] and the like, the experience is much different. The cabinet design and control scheme is just as much a part of the experience as the game itself, and in many cases was meant to enhance the experience. Battlezone is just not the same without stepping up to those goggles. Pac-Man's cabinet is instantly recognisable to those in our generation. Space Invaders in its giant EM [electro-mechanical] cabinet with overlays on the screen is just not the same in an emulator. Then you have completely unique cabinets and control schemes like Wacko, Kozmik Krooz'r, and Tron …

> I take heart in getting these people to come to the Midwest Gaming C[l]assic every year and walk away with wide eyes at the experience. We have a living museum of about 300 coin-ops every year (think it was over that this past year.) Video, pinball, and traditional EM. The experience for them is far different than what they expected, even just being in a more traditional arcade setting than what passes for 'arc[a]des' now.

In this quotation, Goldberg moves from concern with an original experience provided by original hardware (cabinets and control schemes) "instantly recognisable to those in *our* generation" to an experience that is "far different than what [younger generations] expected", courtesy of the play context at a festival which is closer to an arcade, presumably circa 1970s-1980s. Whilst the 'original experience' is apparently a key criterion for such game aficionados – Leonard goes so far as to say that "proper preservation … must take these things into account to some degree" – this slippage suggests that the 'it's just not the same' argument is also readily adaptable, potentially able to be deployed to argue for or against specific installations of historic games.

The sentiments expressed in the quotes here are based on the common sense understanding that history is about 'the way it really was' and that being able to experience games in the future as they were experienced in the past is the aim of game collecting and preservation[1]. Considering *where* such sentiments about the 'original experience' are expressed and *by whom* is worthwhile. Often, they appear in popular writing about game history, in journalistic pieces or enthusiasts' forums, rather than in the writing of scholars or critical game historians. It is interesting – and telling – to me that this discussion took place on a list dedicated to game preservation with a substantial cohort of academics. This is significant because the people involved are amongst those who best understand the issues facing the born digital: that hardware and software are deteriorating, and that such 'authentic' presentations of games on original hardware are expected to soon be impossible. The very gentle responses the discussion elicited from scholars is recognition both of the importance of having varied voices in the debate about preserving elements of game history, and the particular kinds of knowledge that game aficionados bring. For a long time, digital games were, and to an extent continue to be, overlooked by many collecting institutions. In the absence of such 'official' attention, it is – as already stated – largely thanks to the efforts of game collectors and fans that information, hardware, and software from the early years of digital gaming still exist. Yet what is especially curious to me and requires some explanation is the fact that these contributors, who well understand the issues, sometimes seem the most unwilling to accept the 'inevitable': that games will not continue to work in their 'original' form into the future. It is as if they are caught in denial. Why is this so?

Game collectors and fans have a strong investment in game history, and their relation and connection to games can be emotional and nostalgic. Some may be keen to utilise the object's ability to act as a trigger to memory (games are here, perhaps, the contemporary madeleine)[2]. Many could accurately be described, I think, as game lovers in that they love games in the way that art lovers love art. Walter Benjamin – himself a passionate collector – contrasts the art lover with the critic in 'One Way Street' as follows:

> The paid reviewer, manipulating paintings in the dealer's exhibition room, knows more important if not better things about them than the art lover viewing them in the gallery window. The warmth of the subject is communicated to him, stirs sentient springs.
>
> (Benjamin 1997, 89–90)

Games, it is clear, stir the emotions and arouse the senses of game lovers. They are not only fond of these objects and experiences; some are in a sense *devoted* to them, and so cannot bring themselves to fully contemplate their passing. For such individuals, the game they played 30 years ago is the original and to play vintage games now is to experience something of their aura (contra Benjamin 1992a). The game lover seems to see games as possessing a kind of organic unity, an inseparability of hardware and software, even if they sometimes also show a certain pragmatism – parts do need to be swapped out and vintage titles renovated (Guins 2014, 252–253) – that sets games apart from traditional, one-off art objects. But akin to venerated art objects, they are valued in their entirety, and so not easily reduced to components. Essentially, the argument is that a changed display[3], or the absence of artwork affects the experience and enjoyment of the game, and so it's just not the same as the original experience[4]. The argument is remarkably adaptable: everything is valued and nothing can be changed, otherwise the experience is changed and so not authentic.

> *Original, adj. 5a. Created, composed, or done by a person directly; produced first-hand; not imitated or copied from another.*
>
> (OED 2016)

That early digital games should have acquired such a 'cult' value is, of course, deeply ironic, given that games were objects of mass production. According to Benjamin's (1992a) 80-year-old analysis, the artwork or image that is reproduced is supposed to lose its aura. Yet, as I've observed elsewhere, with the passage of time games begin to acquire some of the qualities associated with singular works of art (Swalwell 2007, 263–264). Many collectors value original materials (although some fans are more pragmatic, as I'll detail later), and with time comes

a scarcity of working examples, which raises the value of individual pieces. Furthermore, aging hardware (and software) begins – somewhat perversely – to take on individual qualities, related to a particular material object's history of care and/or abuse. Some items of hardware will cease working long before others, whilst the conditions in which software is stored affects the rate of a media carrier's deterioration. Such factors might be thought of as part of an object's provenance, and there are comparisons that can be made to the patina that art objects such as paintings and sculpture take on. Similarly, there are parallels to be drawn to debates in Art History and Conservation about returning an artwork to its original condition, such as controversy over the restoration of the Sistine Chapel and whether the most recent restoration was even necessary (Kimmelman 1990; Sozanski 1994). But it is the point at which these comparisons cease to hold which is of most interest. One of the qualities that sets early digital games apart from a Michelangelo ceiling is that the game is likely to become unappreciable beyond its box or container without attention from preservationists, and to deteriorate in a far shorter time period than a fresco, painting, or sculpture.

Moving on from the 'Original Experience'

There are several problems with the game lover's privileging of the 'original experience', which scholars of history are well aware of, and critical theory has long questioned. First, this discourse on experience denies the discursive status of experience. As Joan Scott (1991, 777: 779) argues regarding the role of experience in writing history:

> When experience is taken as the origin of knowledge, the vision of the individual subject (the person who had the experience or the historian who recounts it) becomes the bedrock of evidence on which explanation is built. Questions about the constructed nature of experience, about how subjects are constituted as different in the first place, about how one's vision is structured – about language (or discourse) and history – are left aside. The evidence of experience then becomes evidence for the fact of difference, rather than a way of exploring how difference is established, how it operates, how and in what ways it constitutes subjects who see and act in the world.
>
> The project of making experience visible precludes analysis of the workings of this system and of its historicity; instead, it reproduces its terms.

A second, related problem with this ideal of re-experiencing the past through the original game is, put simply, that 'we' have changed. Even if it is possible to play a game on original hardware now, the player is not the same player who confronted this game in decades gone by. Today's

player is, for instance, accustomed to objects on the screen responding to input in a way the first-time player was not. At some level, I think vintage game aficionados know this. Their purism is probably motivated by quite benevolent attitudes: wanting others to be able to have the same joy and pleasure that they had, and to be able to appreciate and value the game in the way they do. Nevertheless, their generosity notwithstanding, game lovers' attitudes to history and experience as I've sketched them tend to be at odds with scholars of history, and those curators who take a more critical view. Depending on their philosophy of history, a scholar might say that the historical import of games has very little to do with 'the way it really was'[5].

There is no doubt that the vision of recapturing the 'original experience' has been a pervasive one in game historical and preservation discourse. I suspect it derives from the emphasis that has been placed on *the game* as the object that should be collected, and that which historians will require access to. Alarm at the disappearance of early digital games has tended to privilege the artefact – the game itself – above all other historical perspectives on early games and gaming. For the game lover, game history is assumed to be synonymous with game preservation. Yet preservation and history are not the same. Game history is – or at least can be – about much more than the games themselves; to wit, the social and cultural conditions extant at the moment of a game's production and/or consumption. Preservation requires the game: without it, there is nothing to preserve. History benefits from the availability of the game, but is not reducible to it. It is time to move on from this discourse of 'original experience'. The writing of game history cannot be held hostage by what Henry Lowood (2016) has characterised as the desire to 're-enact'. There is a need to liberate thought from this paradigm and ask different questions[6].

One question that I am interested in asking concerns how early game and computer culture – specifically from the 1980s, the moment when digitality entered daily life in a meaningful way – might be exhibited for contemporary but particularly for future audiences, who did not live through this moment. I will offer suggestions on this, but I must do it by way of a detour, acknowledging that the 'game_preservation' list discussion with which I began this chapter occurred in 2012. There have been a number of developments since then – in restoration, exhibition and emulation – which have begun to move the debate on in important ways[7].

Retro-gaming

Whilst retro-gaming is far from a new phenomenon, it cannot now be doubted that it is also a substantial industry. Reflecting on his recent report to the Mellon Foundation, David Rosenthal (2015; n.d.) quotes one estimate that puts retro-gaming at a $200 million/year business. This

covers not just collectors purchasing original items, but also the marketplaces for the digital download of retro-games by GOG.com and Steam, as well as major console-makers like Nintendo, Sony and Microsoft (Geigner 2015). A site like GOG provides what might be thought of as 'restored' games. The audience for these titles will no doubt be mixed, but the business seems oriented to providing a service to people who want to replay games they have played in the past simply for the fun of it. Access is easier than ever before: it's no longer necessary to have an understanding of emulation or to procure ROMs online. GOG seeks licenses from rightsholders to repackage and sell historic games, offering these for download to play on platforms and systems they were never intended to be played on. The company has its own custom Galaxy gaming client, described as an "optional client to install, play, and update your games. It also offers online multiplayer, achievements, chat, gametime tracking, and more – but it's up to you which features you want to use" (GOG n.d).

GOG's practices sometimes attract criticism from sectors of the wider historic game fan community. Concerns about authenticity and possible changes being made to a game were voiced in the comments section of an article on GOG published on *Rock, Paper, Shotgun* (Bennet 2015). Expressing a preference for running a disk image in DosBox rather than the GOG 'restored' version of a game, user ansionnach relayed concerns that sometimes the interventions made by GOG to get an old game to work change the game. Additionally, ansionnach warned that what GOG is doing is not preservation. Answering ansionnach was user Klarden, who opined that these were more the concerns of a collector, as opposed to a retro-gamer. Klarden stated:

> GOG is more about making sure the game works on modern stuff and will work on future stuff, and from the get go – you bought it, you install it, and you play it, no need to try and find all the solutions and fixes and 'how to make the game work'.
>
> (cited in Bennet 2015)

From this exchange, we might say that the 'original experience' is of less importance to the contemporary retro-gamer who buys restored games from commercially run sites such as GOG. Access seems to be a higher priority concern for such a player than it is for the 'game lover'. Of course, this is not a zero sum game, and there are nuances and in-between positions: there are 'degrees of fidelity', and it is quite possible to insist upon a high degree of fidelity to an original game, and yet embrace game restoration and emulation[8]. At least for the time being, the retro-gamer market benefits the critical historian in terms of a greater ease of access to historic games. Similar to the examples I discuss next, the restored game purchased through a service, sporting additional

interactive options, clearly marks a departure from the title as it existed upon its first release. The relation between these two versions might be thought of as a derivation, a point I'll return to later.

Exhibition

Another development has been the growth in the attention that cultural institutions are paying to historic digital games, and the ways in which games are exhibited typically does not – and for important reasons often cannot – be held to the standard of the 'original experience'. Cultural institutions have been exhibiting historic digital games on contemporary hardware for at least 15 years. Often these are on so-called 'Frankenstein' devices, where games are run on a hidden computer running an emulator or a hacked console (to make them 'exhibition durable'), whilst an original console or microcomputer is displayed, as in the big international touring exhibitions 'Game On' (2002) and 'Game Masters' (2012)[9]. At other times, simulators and recreations are used, as in the Computer History Museum's (CHM) presentation of *Pong*, which is installed next to the original prototype. One recent example, at the New York Historical Society's exhibition, 'Silicon City' (2015), saw a team of people recreate William Higinbotham's oscilloscope game *Tennis for Two*[10]. Similar to the CHM's display of *Pong*, the re-creation sat adjacent to the vintage hardware, and, as Raiford Guins (2015) writes, "visitors can handle [recreated] controllers … while they play *Tennis For Two* on an 'enlarged' version of the late 1950s oscilloscope that was used to originally display the game". Guins (2015) continues, "this material dialogue between the past and present, I feel, is a good lesson for museums that wish to display games – don't over-privilege the screen at the expense of other material actors that define both the game and our social experience of play".

The Museum of Modern Art's display of 14 videogames in the 'Applied Design' exhibition (2013) marked an important juncture in debates about the 'original experience'. In the gallery, the games are installed on screens set into the wall, with a simple generic controller or joystick and headphones (see Figure 13.1). In a TED talk, curator Paola Antonelli spoke explicitly of how she wanted the focus to be on these game titles as instances of interaction design. She was not interested in the 'sticky carpets' of arcades of yesteryear, or nostalgia, nor any hardware fetishism. As Antonelli (2013) explained:

> We don't want to show the videogames with the paraphernalia – no arcade nostalgia. If anything, we want to show the code … You see them here displayed alongside other examples of design … But there's no paraphernalia and no nostalgia. Only the screen, and a

Figure 13.1 *Space Invaders* videogame installed in the "Applied Design" (2013) exhibition, Museum of Modern Art. Image courtesy of the author.

> little shelf with a controller – the controllers are, of course, part of the experience so you cannot do away with it. But, interestingly, this choice was not condemned too vehemently by gamers. I was afraid that they would kill us, but instead they understood, especially when I told them that I was trying to apply the same stratagem that Philip Johnson applied in 1934 when he wanted to make people understand the importance of design. And he took propeller blades and pieces of machinery and in the MoMA galleries he put them on white pedestals against white walls, as if they were Brâncuşi sculptures. He created this strange distance, this shock, that made people realise how gorgeous formally and also important functionally design pieces were.

A related exhibition strategy can be seen in Stuckey's curation of the exhibition 'Hits of the 80s: Aussie games that rocked the world' (2006) for the Games Lab at the Australian Centre for the Moving Image. In this exhibition, emulated versions of Beam Software game titles were displayed alongside ones running on original computer hardware, but displayed

on LCD screens, and using new controllers, as seen in Figure 13.2. The LCD screens were used partly for budget reasons, because of the fixed furniture of the Games Lab, and also because of hardware instabilities (a number of CRT screens blew up as the exhibition was being prepared) (Stuckey pers. comm. 2013). The inclusion of newer components here introduces interesting effects. The LCD screen is incongruous, yet it gives rise to what I would term a *productive incongruity* given that it has a Commodore 64 keyboard plugged into it, emphasising the dated hardware and the challenges of presenting early games as playable in the Museum.

Whilst game lovers might not favour the substitution of newer hardware and installations, curators' decisions to display historic games on newer hardware have been found, in a number of cases, to enhance the experience of players. Margaret Hedstrom et al. (2006) noted that users in a lab experiment actually preferred playing migrated and emulated versions of the computer game *Chuckie's Egg* to playing it on the original BBC Micro hardware. The authors note that "although a few subjects lamented the loss of the original game 'feeling', most valued the greater ease of manipulation and faster speed of the migrated and emulated versions" (Hedstrom et al. 2006: 171). Jon Ippolito has similarly noted that visitors – particularly younger ones – to the Guggenheim's 'Seeing Double' exhibition (2004) "accepted the changes in look and

Figure 13.2 Daniel Bowen playing *The Way of the Exploding Fist*, in the exhibition "Hits of the 80s: Aussie games that rocked the world", at Games Lab, Australian Centre for the Moving Image, 2006–7. Daniel Bowen.

feel as long as the code behaved the same". Ippolito wants to "ascribe younger viewers' [greater] tolerance of changes introduced by emulation to their years of experience drinking old digital vintages from new bottles", noting that this matters because "we are not used to looking to youth for expertise" (2016: 135). What this also highlights is that the historian's access to historic games – whether in the Museum, via emulated disk image in the reading room, a purchased restored version of a title, or some other means – will likely include a range of access strategies. The task, then, becomes to develop ways of acknowledging and dealing with such changed displays.

Mainstreaming of Emulation

The mainstreaming of emulation in recent years is the third important development that bears on questions about the 'original experience', and how to present vintage games and computer culture to audiences. Whilst concerns and challenges remain, emulation is becoming widely accepted as "an effective technique for [accessing and presenting] legacy digital media" (Rieger et al. 2015; Rosenthal 2015: 18). The recent availability of browser-based emulation, in particular, has considerably broadened the audience for playing historic games and, indeed, other software. The Internet Archive has a significant quantity of software online, running in JavaScript ports of the MESS, MAME and DosBox emulators. The Archive's 'Historical Software Collection' and 'Console Living Room' went online in 2013, quickly followed by its 'Internet Arcade', and large collections of 'MS-DOS games' and other software (Archive.org n.d). Writing specifically about the MS-DOS games, the Internet Archive's software curator, Jason Scott (2016) observes, "emulated programs bounced into the general populace in ways they hadn't before".

> Emulation was and is used by many, many people … But we've not had as many people who are shown a program that runs in a window and then told "Just use it, it's an emulator, we'll work out the details". They know or they don't know much about the emulation system beneath it, but the knowledge is heavily optional.

The Archive is, effectively, 'streaming' games; users merely need an Internet connection and to be running a compatible browser. The browser-based emulations are far from perfect (users are urged to report problems, so that improvements can continue to be made). Yet such easy access will surely enable new forms of historical awareness, and probably also forms of research we have yet to fully conceive[11].

Exhibitions of the Future

At the outset, I claimed that the history of games – and of born digital cultural heritage more generally – needs to move beyond the paradigm of 'original experience' to ask different questions. In what remains, I want to consider two such questions, concerning exhibitions of the future, and assessing discrepancies between emulated versions and an 'original experience'.

All of the exhibitions I've mentioned, such as 'Applied Design' and 'Hits of the 80s', are relatively recent. The oldest game title in MoMA's show is *Pac-Man* from 1980: 36 years since its release is still within living memory, plus *Pac-Man* is a property that has never become obscure. But not all games bridge the decades so effectively. As Stuckey (2014) points out in relation to curating *The Hobbit* (1982), the passage of time brings marked changes in context which can make it difficult for a contemporary player to appreciate innovation in 1980s game design. Thinking beyond current audiences, then, how might one assemble an exhibition of 1980s games and gaming culture in the future, for audiences who have no memory of this seminal era when digitality began to enter daily life? This is at once a question about philosophies of presentation and dis/play, about what gets lost and what gets saved, and about the relation of the game to non-game historic sources. To consider possible responses, it is helpful to look to adjacent fields such as media and net art preservation. Whilst the elapsed time is sometimes shorter, these fields have been considering related questions for some time due to the particularly rapid pace with which the Internet, for example, has changed. Even relatively recent net artworks exist in very different contexts to when they were made. Net art preservationists have thus had to face hard issues. As Laforet (2007) explains, one issue concerns

> works that are 'parasitic' to other websites, such as pieces using data from search engines, or which visualise differently other websites, such as alternative browsers [. S]hould it be exhibited with the websites and technologies available at the moment of its creation or with the tools and content at the moment of its actualisation(s)? Both are possible but have different meanings.

The rapidly changing context for net art has pushed preservationists to consider the moment when museums will be forced to show 'broken' works of digital art. Laforet anticipates this will happen before long and, reprising a 1996 l'Observatoire Leonardo des Arts et des Techno-Sciences study, she proposes the conceptual model of the Archaeological Museum as helpful in thinking about how this might be done. As she writes:

> Archaeology proceeds by fragments, assembling objects of different status and in different states which make sense when put together.

> It knows how to deal with voids, gaps, missing parts, and through a re-contextualisation, how to propose a plausible state of what the original situation could be, while maintaining open alternative hypotheses.
>
> The status of what is displayed and shown is significantly different in an archaeological museum (compared to an art museum): visitors are aware that what they are seeing and experiencing is reconstructed, they do not expect to see an object that is identical to what it was when it was made.
>
> (Laforet 2007)

Laforet's explication of the Archaeological Museum is helpful for thinking about the presentation of games in ways that move beyond attempts to replicate the 'original experience'. Visitors don't need to have an 'original experience' to appreciate the significance of digital gaming's entry into everyday life in the 1980s. Decentring the playable game in favour of displaying a range of materials as elements in an exhibition would give visitors the opportunity to configure and piece together what it might have been like to design, play, and otherwise encounter games of the 1980s. The inclusion of documentation alongside game titles themselves is already happening in exhibition design, and is only going to become more important over time. For instance, in the 'Game Masters' exhibition (2012), visitors are able to watch interviews with creators, view design sketches, documents, merchandise and a host of other materials, as well as play games. Including contextual documentation and other significant materials permits a reconstruction so that even where a game or games no longer function(s), their significance can be explored. Sometimes, documentation will bring a work 'to life', such as video documentation of gameplay (Let's Plays, machinima). Yet static documentary materials are also interesting and meaningful to visitors, and this goes for everyday objects as well as more 'official' ones, both of which Laforet notes Archaeological Museums house[12]. One example goes to Stuckey's earlier referenced point, namely that audiences find it difficult to appreciate how revolutionary technical innovations were when they were new. Private, often overlooked sources such as sketches of artwork on graph paper for a 1980s computer game convey information about creating graphics for 8-bit games in a way that playing the game does not, as per the example in Figure 13.3. Similarly, surviving documentation such as letters of rejection from publishers could provide audiences with contextual information on the 1980s hobbyist's quest to develop their own game. Of course, the memories and reflections of those who played their way through this period constitute critically important primary sources, which enable visitors to appreciate what a game meant to a player at the time[13].

The media arts preservation field also offers some pertinent insights on how discrepancies introduced through emulation can be dealt with.

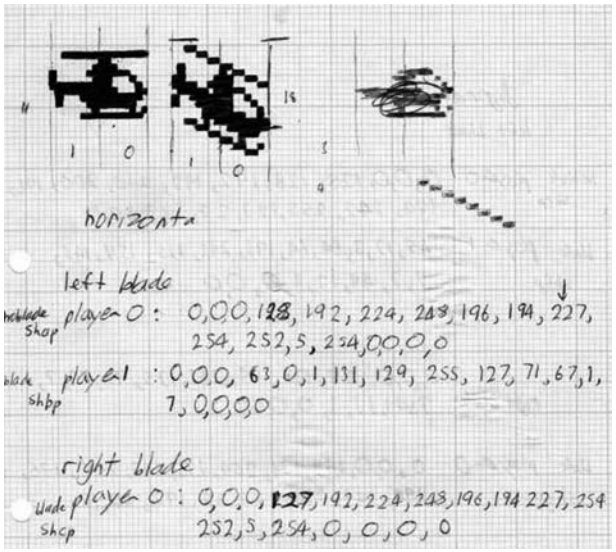

Figure 13.3 Sketch by Andrew Bradfield for the helicopter sprite design used in *Laser Hawk* (1986), a game by Andrew Bradfield and Harvey Kong Tin for the Atari 800 computer.

Oya Rieger et al.'s (2015: 13) study 'Preserving and Emulating Digital Art Objects' found that amongst their user community of media arts researchers:

> Emulation was controversial for many, in large part for its propensity to mask the material historical contexts (for example, the hardware environments) in which and for which digital artworks had been created. This part of the artwork's history was seen as an element of its authenticity, which the archiving institution must preserve to the best of its ability, or lose credibility in the eyes of patrons.

To a certain extent, such concerns echo the concerns of the 'game lover' in that they return to a concept of the original as "belonging to the period in which a work … was first produced". Yet rather than invoking notions of 'original experience', the study's authors helpfully label this as a "cultural authenticity", comprised of key factors: "acknowledgement of the work's own historical contexts, preservation of the work's most significant properties, and fidelity to the artist's intentions, which is perhaps better understood as respect for the artist's authority to define the work's most significant properties" (Rieger et al. 2015, 13–14). After reviewing several models, the researchers created an author questionnaire and interview tool as a strategy to address these concerns. Amongst

other things, these disclose to artists that emulation is the chosen access strategy, and explain some common rendering problems the team has encountered. The questionnaire further requests permission to pursue this strategy with the artwork in question; invites the artist to author a statement about how emulation may alter the work's intended meaning or impact; and invites the artist to discuss alternative access strategies (Rieger et al. 2015, 14–15).

> *Original, n. B.I.1.a. The thing or person from which something springs or is derived; a source, cause; an originator, creator. Obs.*
> (OED 2016)

Approaches to preserving media artworks have for some time emphasised the *variability* of media (Variable Media Network 2004). This is in line with an argument I have made previously about digital games: that rather than being the exception, variation was the norm in 1980s game culture. There were, for instance, many different ways of experiencing a game (the release of arcade titles for home consoles is but one example of this), and the variety of home computer systems meant that many different versions of the 'same' game existed (Swalwell 2009: 275). The contemporary historical moment – in which we are seeing the restoration of games, and their display on a range of devices, including the mainstreaming of emulation – extends this point to its logical conclusion. Rather than dealing with originals and (more or less adequate) copies, or the 'original experience' that a player had with a game in the period in which it was first produced, it is perhaps more useful to think in terms of origins and of a 'source', as that from which derivatives arise. Although the *OED* currently notes this as an obscure definition of 'original', when emulating a historic game, we are necessarily producing a version of it from a source[14].

Whilst game preservationists do their very best to preserve digital games and their traces, what is on offer in museums and galleries is a range of derivative experiences. These may well gain resonance through their proximity to original objects, as in the CHM's installation of a bespoke playable version of *Pong* adjacent to the prototype installed in Andy Capp's Tavern. Significant scope exists for incorporating other, non-game contextual items into exhibitions – not just 'official' sources, but also private ones – and in this chapter I have argued for the foregrounding of such items and the principle of reconstruction, following Laforet's conceptual model of the Archaeological Museum.

In our discussions of game history, and in the collecting and presentation of narratives in game history, we need to think more like archaeologists than game lovers. Even now, a mere 40 years since the advent of home computing, the early history of games is not self-evident and needs to be built up from a range of contextual materials. This is only

going to become more pronounced the more distant the history becomes; however, it also offers opportunities to ensure that a broader range of histories are presented. Embracing the notion that fragments of game history – configured and made sense of by the Museum visitor to arrive at plausible understandings of what the original situation might have been – have a valid role to play, perhaps alongside the playable game, would mark a maturation of the field. Rather than feeding unrealistic expectations that it is possible for museum visitors to have the 'original experience', collecting based on such thinking will enable future curators to (continue to) assemble exhibitions which instead provide audiences opportunities to have a "unique experience with the past" (Benjamin 1992b).

Notes

1 The experiential dimension means this goes beyond even the traditional Rankean understanding of history as recovering and describing 'what actually happened' (Burke 2001: 19).
2 For Marcel Proust, the madeleine acts as involuntary memory trigger, summoning up the minutiae of his growing up in *Remembrance of Things Past* (Proust 1981: 48).
3 Jason Scott has blogged about the work some are doing introducing artifacts into the onscreen display, calling it 'geekery', and recognising that it is peripheral to some. Scott writes:

> In all this, it's the not wanting to lose something than many don't even notice is lost that's the critical move. It's sometimes a bit too OCD and always a little annoying if it's not that important to you, but realising what, exactly, has changed for software makes bringing it back that much more likely. It's a respect for the past beyond the idea of it. It's messy and weird and geeky but that's just the way I like it. (Scott 2012)

4 For the game lover trying to recapture auratic experience from the past, it is not the copy as such that extinguishes the aura and the idea of authenticity it carries, but later technologies used to try to recreate the experience, such as emulators. Thanks to Angela Ndalianis for this observation.
5 Benjamin (1992b: 247) explicitly states, "to articulate the past historically does not mean to recognise it 'the way it really was' (Ranke)".
6 Game historiography can be, and needs to be, much more than this. I explored some experimental forms of 'writing' game history in a keynote at the First International Histories of Games conference (see Swalwell 2013b).
7 An earlier version of this paper appeared as 'Moving on from the Original Experience: Games History, Preservation, and Presentation' (see Swalwell 2013a).
8 See, for instance, Frank Cifaldi's comments in Orland (2016).
9 'Game On' was initially exhibited at the Barbican Gallery, London, 16 May-15 September 2002. 'Game Masters' was initially exhibited at the Australian Centre for the Moving Image, Melbourne, 28 June–28 October 2012. Both exhibitions have toured extensively.
10 Adelle Lin worked on the recreation, and is clearly someone who appreciates vector graphics, opining as she did in a recent talk, "take a look at a Bitmap version of Star Wars versus one done on a vector display. Look at the resolution and the roundness. [The vector display is] just incredibly beautiful". These

comments were made in a presentation given by Lin and Trammel Hudson to the Chaos Computer Club, in which they demonstrate several hobbyist projects for repurposing vector monitors on which to play videogames, such as 'Asteroids' (cf. Monnens, previously). Whereas Lin and Hudson acknowledge that vector displays are getting scarce – they recommend sources such as old analogue oscilloscopes on Craigslist, vectorscopes from TV stations, and even Vectrex consoles – they also demonstrate how scavenged displays are being repurposed into new projects (Hudson & Lin 2015).

11 Drawing on similar technology (a JavaScript port of DosBox), the GameCIP project has created a tool that allows researchers to play an emulated game in a browser, and cite a particular game state by linking directly into that running game.

12 Nor does the Archaeological Museum have an issue with an artefact being significant for both aesthetic and cultural reasons. It can be exposited through both narratives of use and artistic appreciation.

13 The 'Play It Again' project built a 'Popular Memory Archive' to elicit such recollections from the public (de Vries et al. 2013).

14 Is it just coincidence that the code from which games arise shares this name?

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