DEADPLAY: A METHODOLOGY FOR THE PRESERVATION AND STUDY OF
VIDEOGAMES AS CULTURAL HERITAGE ARTIFACTS

by

DANY GUAY-BÉLANGER, B.A. History

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Department of History

Carleton University

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Abstract

Videogames, while a digital art, live on physical media. Whether cartridge, magnetic tape, floppy disk, they degrade. Without care and study, they die and cannot be played again. While it might be possible to resurrect play using emulation or video captures, scholars need to consider every option at their disposal to preserve videogames for future study. This includes securing original versions of games and ephemera; recording play; interviewing game creators and players; and much more. This project develops a new approach to conceptualise videogames as material and cultural heritage, and proposes a methodology for the study of older videogames, especially those for which there is no original version left (e.g. "dead" games). Once dead, games can only be experienced though what this project describes as deadplay, or playing dead games. This essay reflects on the project's theoretical foundation, positions it in the Public History field, and explores the use of podcasting as a medium.

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"No one on their death bed ever said, 'I wish I had spent more time alone with my computer.'"[1]
- Danielle Bunten Berry

Introduction

Whether single player or head-to-head, casual or massively multiplayer online, videogames and videogaming as a pastime are extremely social. Indeed, the rise of "eSports" also positions videogames as spectacle and performance. Thus, preserving the assemblage of material culture, digital culture, and cultural history of this medium is a pressing concern for museums – especially as the first generations of videogame materials are rapidly decaying or are being forgotten. Would it be during their conception and design, when one plays them, or for their preservation; games are synonymous with community and collaboration. For the longest time, videogames were overlooked by both academia and heritage institutions. Very much like film, they were pure entertainment, devoid of artistic and cultural worth. What preservation that occurred was ad hoc and done by members of the player community itself. Sometimes this was a conscious decision to preserve; more often than not, it was through happy accidents that materials were kept in basements, closets and attics.

Let us imagine a portable videogame console, such as a Nintendo DS Lite. A history of videogaming might reflect on the larger place of this console in the development of technology, or the impact of these consoles in broad social or economic terms. Is there a space for the microhistory of this particular console? How would focusing on this microhistory expand our understanding of videogames? Say its owner donated it to the Canada Science and Technology Museum (CSTM) because they stopped using it. That person could have used the console while they traveled abroad,

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[1] Greg Costikyan, "Danielle Bunten Berry (1949–1998)," The Encyclopedia of Arkansas History & Culture, last modified September 26, 2017, http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=4524.

bringing it with them to pass the time. For instance, the person could have been a mining prospector in Haiti and needed a console small enough for them to carry. They might also have acquired a special cartridge capable of housing multiple games, because procuring games in Haiti would be too expensive or difficult. This story is not fictitious; that Nintendo DS Lite is currently in the CSTM's collection. However, apart from the name of the person who donated it, the story behind the console is not recorded in the museum's database.[2] I was very lucky since, while I was the Garth Wilson research fellow at the CSTM, the donator also happened to get a contract. We shared an office.

Without this series of random stories, that story might have never been recorded. But shouldn't we know it? Shouldn't we try to understand what this console meant to the person who played it? The CSTM's collection is filled with games much older than this DS Lite and at different stages of decay. Like the DS, most have no or very little descriptions. What do these games mean now, in the present? Could we play them again and understand something of their meanings? Why or why not? How do we, as public historians, study this material? Why should we study it? What is the current state of play? When more of these games enter our collections, how are we going to deal with them? These are the questions that Deadplay seeks to understand or, at the very least, raise.

There is now a concerted effort from many institutions – such as the Laboratoire Universitaire de Documentation et d'Observation Vidéoludiques (LUDOV), the Residual Media Depot, and the Strong Museum of Play – and scholars – such as Henry Lowood, James Newman, and John Haycock – to preserve and understand the various impacts and meanings of videogames. Interestingly, academia and heritage institutions have been trying to devise appropriate methods

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[2] Nintendo DS Lite, 2015.0343.001, Ingenium Communications Collection, Ottawa, Ontario, Canada.

for their preservation, but have overlooked most of what has been done in vernacular culture.[3] The current research fits into this gap through the methods and techniques of public history. This essay suggests that since videogames are inherently collaborative and emblematic of popular culture, their preservation should similarly be collaborative and use the tools of public history. The methodology I propose revolves around the concept of "assemblage" understood broadly.

Since the podcast and twitch-stream are two of the most popular community-generated forms for discussing videogames, a podcast is a natural form for my research. The podcast is called "Deadplay". Disseminating this research through this medium enables to reach the public beyond museums who is already working to conserve this art form. The podcast's audio files are hosted on the project's website, deadplay.net, and archived at https://doi.org/10.5281/zenodo.1243859. This essay is a scholarly reflection on the podcast and reveals the theoretical underpinnings of the project. By design, most of the theory on which the podcast is built could not be included in the script itself. Yet, these theoretical discussions are present in the show notes of the podcast for those who are interested. This reflection will describe intertextuality, paratextuality, aura, and assemblage theory; and will discuss podcasting as a medium for public history projects.

Cultural Impact and Historical Significance of Videogames

Popular culture is a medium and vehicle for framing historical consciousness. Many historians, such as Natalie Zemon Davis,[4] who works on film, and David Dean,[5] who works on

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[3] Skot Deeming, interview by Dany Guay-Bélanger, November 24, 2017.

[4] See Natalie Zemon Davis, "Movie or monograph? A Historian/Filmmaker's perspective," *The Public Historian* 25, no. 3 (2003): 45-48, Natalie Zemon Davis, *The Return of Martin Guerre* (Cambridge, MA: Harvard University Press, 1983), Natalie Zemon Davis, *Slaves on Screen: Film and historical vision* (Toronto: Vintage Canada, 2000), and Natalie Zemon Davis, "Un Débat en Coulisses: Trumbo, Kubrick et la Dimension Historique de Spartacus, 1960," *Actes De La Recherche En Sciences Sociales* 161-162, no. 1 (2006): 80-95.

[5] See David Dead, "Staging the Settlement: Shekhar Kapur and the Parliament of 1559," *Parliamentary History* 34, no.1 (February 11, 2015): 30-44, David Dean, "Theatre: A Neglected Site of Public History?," *The Public Historian* 34, no. 3 (Summer 2012): 21-39, https://doi.org/10.1525/tph.2012.34.3.21, David Dean, "Negotiating Accuracy and Authenticity in an Aboriginal King Lear," *Rethinking History* 21, no. 2 (2017): 255-73,

theatre and film, investigate it to uncover how the public perceives and interacts with the past. A new form of popular culture has entered the mainstream but remains largely under-researched by historians interested in conservation and public historians: videogames. According to Monnens et al., "electronic games have profoundly changed the way people play, learn, and connect with each other."[6] This influential medium, which emerged roughly 60 years ago,[7] now reaches a majority of households and its penetration of the mainstream does not seem to be slowing down. The Entertainment Software Association claims that, as of 2017, "65% of U.S. households are home to at least one person who plays 3 hours or more a week" and "67% of U.S. households own a device that is used to play video games."[8] Historians, however, still struggle to understand them.

Aside from the fundamental question of their cultural significance, videogames pose unique problems for historical preservation, and thus long-term research. Like all software, they are stored on media with a limited lifespan. Many older games' original versions are at risk of disappearing,[9] or already have. For instance, diskettes and floppy disks, media which stores information magnetically on flexible disks,[10] last between ten to thirty years.[11] Meaning that games released on this medium in 1980 will most likely be unreadable today. Every form of media storage

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or Yana Meerzon, Kathryn Prince, and David Dean, *History, Memory, Performance* (New York: Palgrave Macmillan, 2015).

[6] Devin Monnens, Zach Vowell, Judd Ehtan Ruggill, Ken S. McAllister, Andrew Armstrong, and Henry Lowood (ed.), "Before It's Too Late: A Digital Game Preservation White Paper," *American Journal of Play* 2, no. 2 (Fall 2009): 139.

[7] This project situates the start of videogame history with the appearance of the first videogames in the late early 1960s, with *Spacewar!*. The game's first version was completed in late 1961 and was finally finished in spring 1962. There are earlier examples of videogames, such as *Tennis for Two*, but it was *Spacewar!* that launched videogaming as a medium. For a discussion on the early history of videogames, see Tristan Donovan, "Introduction," in *Replay: The History of Video Games* (East Sussex: Yellow Ant, 2010): 3-13.

[8] Entertainment Software Association, "Essential Fact about the Computer and Videogame Industry" (annual research report, 2017), 4., accessed April 20, 2018, http://www.theesa.com/wp-content/themes/esa/assets/EF2017_Design_FinalDigital.pdf.

[9] Monnens, et al., "Before It's Too Late," 1.

[10] Stephen J. Rogowski, "Floppy Disk," in Encyclopedia of Computer Science, third edition, ed. Anthony Ralston and Edwin D. Reilly (New York: Van Nostrand Reinhold, 1993), 557-558.

[11] "Bit Rot," Software Preservation Society, last modified May 7, 2009, http://www.softpres.org/?id=glossary:bit_rot.

decays, even more recent ones. Even online games, which are often stored on computers or servers other than the player's console or computer, decay. And once that storage medium becomes unreadable, those games will be lost. Sadly, we must come to terms with the notion that many original versions of games are irretrievable. These are dead games. Once dead, these games can only be experienced through derivative material or subsequent versions, something this project labels deadplay (i.e. playing dead games). As these games disappear, so does the multitude of experiences and memories they created. Therefore, investigating the preservation of videogames, and devising practical and effective means for scholars to study dead games is of the utmost importance.

The study of videogames falls under the umbrella term of game studies, a young discipline which is interdisciplinary at its heart. A quick glance at Mark J.P. Wolf and Bernard Perron's *The Videogame Theory Reader[12]* and *The Videogame Theory Reader 2*,[13] reveals a diverse authorship ranging from academics to professionals in the videogame industry. Game studies also has a significant presence online through scholarly communities dedicated to the study of videogames, such as *Play the Past*.[14] This collaboratively edited and authored website, where a significant number of its authors are historians,[15] "is dedicated to thoughtfully exploring and discussing the intersection of cultural heritage (very broadly defined) and games/meaningful play (equally broadly defined)."[16] Historians are involved in game studies, but mostly focus on conducting

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[12] Mark J. P. Wolf, and Bernard Perron, ed., *The Video Game Theory Reader* (New York: Routledge, 2003).

[13] Mark J. P. Wolf, and Bernard Perron, ed., *The Video Game Theory Reader 2* (New York: Routledge, 2009).

[14] Ethan Watrall (ed), "Home," *Play the Past,* accessed April 18, 2018, http://www.playthepast.org/.

[15] Ethan Watrall (ed), "Authors," *Play the Past*, accessed April 16, 2018, http://www.playthepast.org/?page_id=28.

[16] Ethan Watrall (ed), "About," *Play the Past*, accessed April 16, 2018, http://www.playthepast.org/?page_id=2.

historical analysis of video games. For instance, some treat the act of playing a videogame as a kind of re-enactment, such as Annette Vowinckel.[17] While others discuss the use of historical realism in videogames and how it can come at odds with historical details, such as Brian Rejack.[18] Nonetheless, the current history of the emergence of videogames as a medium has been written by non-historians. In fact, the most complete and detailed manuscript on the subject, *Replay: The History of Videogames,* is written by a journalist, Tristan Donovan. While his monograph is of the highest quality, there are issues associated with having non-historians doing historical research, such as making ahistorical analyses.

While games studies is a rapidly growing discipline, historians seem to be under-represented at game studies conferences. When attending 2017 Game History Annual Symposium[19] in Montreal, I was stuck by the near absence of historians – I was the only one. This issue is also present at meetings of historical associations. Since 2000, the Canadian Historical Association (CHA) has only had one panel on videogames.[20] The American Historical (AHA) fairs somewhat better, having four in the same timeframe.[21] Bob Whitaker, American history professor, host of the *History Respawned* podcast, and chair of the "Historia Ludens: Games and Play in the Practice of History" panel at the 2016 AHA meeting, has echoed this concern. One of the main reason he created the *History Respawned* podcast was to build a larger academic interest in games and gaming, as well as to redress the lack of interest from more traditional disciplines, like history.

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[17] Annette Vowinckel, "Past futures: From Re-Enactment to the Simulation of History in Computer Games," in *Historical Social Research / Historische Sozialforschung* 34, no. 2 (128) (2009): 322-332.

[18] Brian Rejack, "Toward a Virtual Reenactment of History: Videogames and the Recreation of the Past," Rethinking History vol. 11, no. 3 (September 2007): 411-425.

[19] "Symposium Annuel Histoire du Jeu," Symposium Annuel Histoire du Jeu, accessed April 18, 2018, https://www.sahj.ca/.

[20] "Annual Meeting," Canadian Historical Association, accessed April 16, 2018, http://www.cha-shc.ca/english/what-we-do/annual-meeting/annual-meeting.html#sthash.WTop9JSg.dpbs.

[21] "Archive of Past AHA Annual Meetings," American Historical Association, accessed April 16, 2018, https://www.historians.org/annual-meeting/past-meetings-archive.

Whitaker has also been publishing calls to arms on the American Historical Association website and in the Washington Post, but says he has failed to stimulate such engagement.[22] Furthermore, none of the panels at both the CHA and AHA meetings touched on the preservation of videogames. This situation stresses even more the need for further scholarship on game preservation.

Some historians, such as Henry Lowood and Jon-Paul Dyson, have contributed in the discussion surrounding the preservation of digital games and how this relates to future research. The first efforts for the preservation of videogames typically focused on the material aspect of games. i.e. consoles, diskettes, cartridges, etc. But to truly understand a game, one must also understand and preserve the emergent experience of gameplay. Therefore, the conversation has recently shifted towards the preservation of use[23] and discussion of videogames as audio-visual and cultural heritage.[24] Videogames are not either material or audio-visual and cultural heritage, they are both. There is need for an approach that unifies the two.

Current Approaches and Theory on Preservation

During the summer of 2017, I interned at the Canada Science and Technology Museum, where I assessed the museum's software collection, which includes videogames. By mid-summer, I had assessed 250 artifacts, and updated and completed their worksheets. I read an extensive reading list on software preservation accumulated by the former assistant curator and later drafted

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[22] Bob Whitaker, "Episode 41: Annoyed with Called of Duty WWII," January 22, 2018, in *History Respawned*, podcast,10:25, accessed April 16, 2018, https://soundcloud.com/historyrespawned/episode-41-annoyed-with-call-of-duty-wwii.

[23] See Smithsonian American Art Museum, "Playing Pong in 2100: How to Preserve Old Videogames - Part One," filmed August 18, 2012, at Playing Pong in 2100: How to Preserve Old Videogames, Washington, DC, video, 1:33:00, https://www.youtube.com/watch?v=g__noQCDZsc.

[24] René Glas, Jesse de Vos, Jasper Van Vught, and Hugo Zijlstra, "'Let's Play' Videos, Game Preservation, and the Exhibition of Play," in *The Interactive Past: Archeology, Heritage & Videogames,* edited by Angus A.A. Mol, Csilla E. Ariese-Vandemeulebroucke, Krijin H. J. Boom, and Aris Politopoulos (Leiden: Sidestone Press, 2017), 135-151, https://www.scribd.com/embeds/348615539/content?start_page=1&view_mode=scroll&access_key=key-GKqNp4lJ1kYgWbo34HgU&show_recommendations=false.

a research document on the preservation of born-digital artifacts (see Appendix A). At present, this document has been tabled due to the pressing need of the museum to move its collection to a new building.

This dive into software preservation exposed me the many issues surrounding it. One critical aspect is the materiality of digital artifacts. Software is intangible; one cannot directly hold it. Yet, it is not immaterial either. Software is literally pits and grooves on a CD-ROM that disrupt a laser beam; it is charged particles that disrupt a magnet; it is pulses of electricity that flow through logic gates. Software resides in a liminal space between physical and digital. One can purchase a CD or DVD with a videogame on it, but what one holds is but the housing medium of that software. This is also the case of software bought online. It is downloaded directly to a computer, but it is the hard drive of that computer that houses the software. Perhaps a fitting metaphor would be that of a letter. The paper on which a letter is written merely holds the information that the words communicate.[25] Without the letters inscribed onto the paper, the paper ceases to be *a* letter. One cannot hold words physically. This is the same for software, the housing medium merely holds the executable files and code which make up software. However, what distinguishes a letter from software, is that the former can be read without use of a specialised machine. Software is dependent on hardware.

The dual nature of software is what makes it so difficult to preserve. Software is two objects: the code-object and the media-object.[26] I apply Mark Harman's definition of source code

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[25] For more information see Claude E. Shannon, "A Mathematical Theory of Communication," *Bell System Technical Journal* 27, no. 3 (July 1948): 379-423. https://doi.org/10.1002/j.1538-7305.1948.tb00917.x.

[26] This is the phrasing I developed at the Canada Science and Technology Museum in conjunction with the Collections Manager, Sean Tudor, and Curator of Communications, Tom Everett, for the purposes of internal curatorial processes. See Dany Guay-Belanger, Tom Everett, and Sean Tudor, "Canada Science and Technology Museum – Digital Preservation Research Report," (research report, Ingenium, 2017). This document is in Appendix A of this reflection.

to the code-object. He defines it as "any fully executable description of a software system." This includes "machine code, very high level languages and executable graphical representations of systems."[27] Therefore, Harman's definition also includes the user interface. For the media-object, this includes every physical object surrounding software, including housing medium and complementary objects (i.e. paratextual material and information).

Several software and videogame preservation scholars have devised lists of material necessary to the preservation of born-digital artifacts, notably John G. Zabolitzky[28] and Monnens & al.[29] Both lists, which were published in 2002 and 2010 respectively, include important material, such as development material, legal documentation, user manuals, and source code. But focusing on materials neglects that software needs to be used, to be run, for it to actually *be*, and so the ancillary materials that enable or depend on and result from that running also need to be considered. The tendency to emphasise development rather than use has recently been challenged by scholars such as Henry Lowood and Glas & al. In a presentation entitled "Replay: Games, Performance, Preservation" given at Concordia University in November 2017, Lowood presented an interesting piece of software toolkit called the Game and Interactive Software Scholarship Toolkit (GISST). He argued that this toolkit with emulation – running of old games on newer hardware, a simulation of the old platform – would permit researchers to view, compare, and play the various versions of emulated games. [30] Lowood also emphasised the potential of save files. For

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[27] Mark Harman, "Why Source Code Analysis and Manipulation Will always be Important," *10th IEEE International Working Conference on Source Code Analysis and Manipulation* (2010), doi:10.1109/SCAM.2010.28.

[28] John G. Zabolitzky, "Preserving Software: Why and How," *Iterations: An Interdisciplinary Journal of Software History* 1 (September 13, 2002): 1-8, retrieved from http://www.cbi.umn.edu/iterations/zabolitzky.html.

[29] Devin Monnens, Zach Vowell, Judd Ehtan Ruggill, Ken S. McAllister, and Andrew Armstrong, "Before It's Too Late: A Digital Game Preservation White Paper," edited by Henry Lowood, *American Journal of Play* (Fall 2009): 153.

[30] Henry Lowood, "Replay: Games, Performance, Preservation," (presentation, Concordia Media History Research Centre, Montreal, Quebec, Canada, November 10, 2017).

instance, the save files of NoSkill, a high-skilled Doom player who died at the age of 23, are available online. If they are loaded into the game, one can reactivate play performance and see what NoSkill saw. This shows the great potential of using save files to preserve and study gameplay.[31]

There is still one great issue with preservation of play: human-machine interaction. While save files will show what the player saw on the screen, it will not show how they shouted, reacted, felt, or were moved by what they experienced via their computer, console, or controller. It will not recreate the social experience of playing the game for the first time in a living room with chips and a soft drink, and a friend shouting advice, for instance. Some scholars have already started to record play sessions that attempt to capture this aspect of videogames. Glas & al., for instance, installed a Commodore 64, a videogame console from the 1980s, at the Netherlands Institute for Sound and Vision's exhibition of Dutch audio-visual cultural heritage to record volunteers playing different games. This approach seems promising since it can record the interactions of multiple generations playing games in groups. For instance, a woman and her child played a game together, but the child thought it was too slow. Their mother responded by explaining how games were slower in the 1980s.[32] Not only does recording these play sessions tell researcher how players interact with the game physically, it also lets them discover player expectations and how games evolved. Nevertheless, there are still some pressing issues concerning the physical aspects of videogames and software which make this form of preservation problematic.

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[31] Lowood, "Replay: Games, Performance, Preservation."
[32] Glas and al., "'Let's Play' Videos, Game Preservation, and the Exhibition of Play," 145.

Born-digital artifacts have a much shorter lifespan than paper-based ones.[33] In fact, digital material suffer from three important issues: bit rot, hardware failure, and format obsolescence. The first, bit rot or media decay, is "the gradual and natural decay of digital information and storage media over time, causing information to become unreadable."[34] Every housing medium has a different lifespan and decays differently. Magnetic media, such as diskettes and cassette tapes, last between ten to thirty years before they start losing their magnetic properties.[35] Optical disc media, like CDs and DVDs, lifespan is currently unknown. They suffer from CD rot, which is the physical and chemical destruction of their reflective layer, and CD bronzing, which is the discoloration of the disc. [36] Read-Only Memory (ROM) cartridges corrode from contact with moisture and battery acid. The ultimate life-span of ROM cartridges with a plastic enclosure "is unknown, but it is possible that some cartridges-based games will last longer than the copyrights associated with them."[37] Erasable Programmable Read-Only Memory (EPROM) last upward of 25 years, but the electrons within them slowly leak through the cartridge's insulation, causing the "irretrievable loss of information."[38] ROM and EPROM both use Random Access Memory (RAM) chips to store information. These chips are powered by batteries, but when they die, the information saved on the cartridges is erased.[39]

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[33] Monnens & al., "Before It's Too Late," 160.

[34] Monnens & al., "Before It's Too Late," 141.

[35] "Bit Rot," *Software Preservation Society,* last modified on May 7, 2009*,* http://www.softpres.org/glossary:bit_rot quoted in Monnens & al. "Before It's Too Late," 141.

[36] Ibid.

[37] Ibid.

[38] Blackjax, "A Small Lesson in Bit Rot," *System Failure*, accessed December 8, 2005, http://my.ais.net/~xtreme/SF/Bit-Rot/ quoted in Monnens & al. "Before It's Too Late," 142. Ironically, this website is now dead. A copy exists at the Internet Archive. See https://web.archive.org/web/20120817134557/http://my.ais.net:80/BD/05/xtreme/SF/Bit-Rot/.

[39] Monnens & al., "Before It's Too Late," 142-143.

One option to remedy the issue of bit rot would be to image (i.e. clone) the information on these housing media on a newer format, such as hard drives or servers. Yet, these also suffer from degradation and indefinitely moving files from a dying medium to a new one is resource intensive and time consuming. Furthermore, to ensure the effective preservation of a digital artifact, there needs to be three copies.[40] This causes issues in terms of space, as while it might be possible to save one copy of a videogame, saving three will take much more space and resources. Additionally, if the location where those copies is victim to fire or a natural disaster, this could result in the loss of the three copies. Ideally, each copy would be saved in different locations, maximising their chance of survival. One of the seemingly most promising options would be to use Trusted Digital Repositories (TDR), also known as Trustworthy Digital Repositories, whose mandate is "to provide reliable, long-term access to managed digital resources to its designated community, now and in the future."[41] Should their objective and rigorous policies be broadly adopted, the long-term preservation of software might more easily be assured.

The second, hardware failure, is as important. While there might still be functional diskettes, CDs, or cartridges available, their original hardware might not. Like any other technological object, videogame consoles and computers age and eventually stop functioning correctly, if not entirely. Parts malfunction, especially if platforms are not properly maintained. While there is a tendency not to use objects in museum collections, this is detrimental to hardware.

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[40] Katherine Kott, "Digital Repository Best Practices for Cultural Heritage Organizations," (best practices document, *Computer History Museum*, February 3, 2012): 7, http://www.computerhistory.org/atchm//wp-content/uploads/2012/09/Best_Practices_Report_2012-02.pdf. Trevor Owens, current Head of Digital Content Management for Library Services at the Library of Congress, has written a book on digital preservation, which will be released in December 2018. He has posted a full draft of this book on his website at http://www.trevorowens.org/2017/06/full-draft-of-theory-craft-of-digital-preservation/. See Trevor Owens, The *Theory and Craft of Digital Preservation* (Baltimore: Johns Hopkins University Press, 2018).

[41] Research Libraries Group and Online Computer Library Center, "Trusted Digital Repositories: Attributes and Responsibilities," (report, *Research Libraries Group*, Mountain View, CA, May 2002): 37, https://www.oclc.org/content/dam/research/activities/trustedrep/repositories.pdf.

The power supply of computers and consoles have capacitors which, if they are not periodically powered up, can explode and damage the platform.[42]

Furthermore, the production of some screens, such as CRT TVs, and their parts have stopped. This means that repairing them becomes increasingly difficult, as parts become harder to find. Likewise, as less of these screens survive, there is less demand for those able to repair them, resulting in a disappearance of the knowledge necessary to their preservation.[43] This is also true for platforms themselves. There has been some recognition of this issues by scholars, such as Michael Mansfield [44] and James Newman [45] who discuss the issues of attempting to play videogames on modern displays. Doing so, typically results in quite different visuals and, at times, game breaking issues. The average user might experience this by opening software on Retina-enabled i-devices that were not designed for the high-capacity display: pixellated, fuzzy graphics, etc. Another issue comes with controllers. Games' many platforms and games themselves were designed for particular controllers and playing them without their respective controllers changes the experience.[46] If hardware is lost or stops functioning, one cannot experience the game.

The third issue is format obsolescence. As computer operating systems and hardware improves, older software and games stop being supported. For example, a game that could be played on an Apple II computer cannot be played on the latest version of the Apple operating system (iOS). Consoles suffer from the same issue, as they are but specialised computers dedicated to videogames. Typically, most consoles do not permit older games to be played on them, even if

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[42] Zbigniew Stachniak, "Notes on Software Recovery and Preservation," (presentation, *Canadian Science and Technology Museum,* Ottawa, ON, April 25, 2014).

[43] Smithsonian American Art Museum, "Playing Pong in 2100: How to Preserve Old Video Games - Part One."

[44] Ibid.

[45] Newman, *Best Before,* 140-141.

[46] Smithsonian American Art Museum, "Playing Pong in 2100: How to Preserve Old Video Games - Part One."

they were made for the same console family. There is some level of retro-compatibility, but this is not always the case. Changes in housing medium, moving from cartridges to CDs for instance, or manufacturers simply not offering this option will prevent playing older games on new consoles.[47]

One of the ways to circumvent these issues and preserve use is emulation. This method involves "replicating the exact operation of another hardware and software environment."[48] Put simply, emulation tricks software into thinking it is being run on the correct operating system and hardware. This seems to be a promising avenue for the preservation of gameplay and there has much support for this practice. Recent conferences on videogame preservation, such as the Video Game Preservation Workshop organized by the Stanford University Libraries in February 2018, spent much time on the potential of emulation for preservation purposes and videogame research.[49] Yet, emulating games is problematic.

David Murphy and Olivier Charbonneau, have described at length the legal implication related to emulating games. In order to emulate a game, one must first circumvent copy protection, a practice which is illegal under both in Canadian and American copyright law. The Canadian Copyright Act does not "clearly stipulate whether a new interoperability provision (30.06) makes the use of emulation legal for scholarly research."[50] And, in the U.S., the Digital Millennium Copyright Act (DMCA) only puts in exemptions for museum, archives, and other heritage

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[47] See Newman, *Best Before*, 55-59.

[48] Monnens & al., "Before It's Too Late," 144.

[49] "Video Game Preservation Workshop: Setting the Stage for Multi-Partner Projects," Stanford Libraries, accessed April 18, 2018. https://www.eventbrite.com/e/video-game-preservation-workshop-setting-the-stage-for-multi-partner-projects-tickets-39405135822?utm_source=eb_email&utm_medium=email&utm_campaign=event_reminder&utm_term=eventname.

[50] David Murphy, "Hacking Public Memory: Understanding the Multiple Arcade Machine Emulator," *Games and Culture* 8, no. 1, p. 48 and Bill C-11, *An Act to Amend the Copyright Act, 1rst session, 41rst parliament, 2011-2012, June 29, 2012, Statutes of Canada 2012,* http://www.parl.ca/DocumentViewer/en/41-1/bill/C-11/royal-assent/. In David Murphy's piece, he mistakenly refers to Bill C-10, as opposed to Bill C-11.

institutions for three year periods.[51] These exemptions are, at the time this reflection is being written, currently being revised. The unstable nature of these exemptions to the DMCA hinders American heritage institutions' preservation efforts. In addition, copyright law varies from country to country, meaning that while emulation might be legal in Canada, it could be illegal in France.[52] Internationally, copyright law is a barrier to the preservation of software and, more to the point, videogames. Given all of these issues, what then are we to do?

Proposed Approach: Intertextuality, Paratext, Aura, Assemblages and Articulations

There is a lack of established vocabulary and practices for videogame preservation, but we might appropriate, with due caution and translation into our own domain, theories and practices from other disciplines. In particular, I suggest that the literary theories of intertextuality and paratextuality, the notion of aura, and the ontological framework of assemblages and articulations are useful to understand videogames and their preservation.

The literary notion of intertextuality provides an interesting take on the origin and influences of videogames. This theory suggests "that meaning in a text can only ever be understood in relation to other texts; no work stands alone but is interlinked with the tradition that came before it and the context in which it is produced."[53] Put simply, and if we adapt the theory to videogames, games can only be understood in relation to other videogames. Dominic Arsenault applies this theory when discussing *Shovel Knight*. He argues that it draws strong inspiration from other games,

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[51] "Bill C-11: The Copyright Modernization Act," *University of British Columbia*, accessed August 17, 2017, http://copyright.ubc.ca/guidelines-and-resources/support-guides/bill-c-11-the-copyright-modernization-act/.

[52] See Olivier Charbonneau, Marie-Ève Guibord, Marie Hélène Labory, Olivier Ménard, Brigitte Moreau, Sophie Morissette, and Raphaella Dixon, "Droit d'Auteur en Contexte Scolaire: Un Modèle d'Utilisation Équitable des Œuvres Littéraires et Artistiques dans les Écoles du Québec / Le Chantier du Droit d'Auteur en Milieu Scolaire," (presentation, Congrès des Milieux Documentaires, Montréal, Canada, October 31 to November 2, 2012), accessed August 15, 2017, http://spectrum.library.concordia.ca/974927/.

[53] Graham Allen, *Intertextuality: The New Critical Idiom* (New York: Routledge, 2000), i.

such as "*Mega Man, Castlevania, DuckTales, Zelda II,* and occasionally *Faxanadu*," as well as many others.[54] This argument could be pushed further. I would add that derivatives from games – such as ports, re-releases, emulation, fan fictions, etc. – use their direct ancestor, the original version, as intertext.

The concept of intertextuality also accounts for the influences of other sources. "The systems, codes and traditions of other art forms and of culture in general are also crucial to the meaning of a work of literature."[55] In other words, to truly understand literature, or in this case videogames, one must also look to other media that influence the design and creation of the games. Like text, videogames are not only influenced by other games, but also by culture and other art forms. This is the argument of Tristan Donovan in his book *Replay: The History of Videogames*, in which he identifies literature, comic books, film, and *Dungeons & Dragons* some of the most prominent influences and inspirations to videogames.[56]

Paratextuality is another significant literary theory applicable to videogames. Chris Koenig-Woodyard clearly summarised this notion by arguing that Gérard Genette, the literary scholar who developed paratextuality,

> formulates a simple algorithm that governs the whole of *Paratexts:* Paratext = peritext + epitext. The peritext includes elements 'inside' the confines of a bound volume – everything between and on the covers, as it were. The epitext, then, denotes elements 'outside' the bound volume — public or private elements such as interviews, reviews, correspondence, diaries etc. — although Genette does comment that 'in principle, every context serves as a paratext.'[57]

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[54] Dominic Arsenault, "Shovel Knight Redug: The Retro Game as Hypertext and as Uchronia," *First Person Scholar*, last modified November 16, 2015, http://www.firstpersonscholar.com/shovel-knight-redug/.

[55] Allen, *Intertextuality*, 1.

[56] Tristan Donovan, *Replay: The History of Video Games* (East Sussex: Yellow Ant, 2010).

[57] Chris Koenig-Woodyard, "Gérard Genette, Paratexts: Thresholds of Interpretation. Translated by Jane E. Lewin and foreword by Richard Macksey. Cambridge: Cambridge University Press: 1997. ISBN: 0-521-41350-8 (hardback), 0-521-42406-2 (paperback). Price: £50 (hardback), £16.95/$29.95 (paperback)," Review of *Paratexts: Thresholds of Interpretation,* by Gérard Genette, Romanticism on the Net 13, February 1999, https://www.erudit.org/en/journals/ron/1999-n13-ron425/005838ar/.

In essence, if this is applied to videogames, the peritext could be interpreted as the box of the game and everything inside it (the housing medium and everything on it, the manual, etc.) and the epitext would be everything outside of the box (development and marketing material, interviews, reviews, and so on). But videogames' paratext has the potential to be much more complex than the paratext of books.

As the number of people who can potentially work on the creation of a videogame is greater and more diverse – from programmers, to music composers, and even military advisors – so is the potential for peritextual and epitextual material. Videogames cannot be treated simply as literature. The diverse origins and inspirations of this medium requires that they be analysed and thought of differently. For instance, when applying paratextuality to videogames, one must account "for flexibility in when a game text (or any other media text) might become a paratext and vice versa."[58] This flexibility is what both makes analysing and even defining videogames so difficult, and so rich in potential. Paratextuality is a useful tool to understand them, but it should be adapted to videogames.

James Hodges and Mia Consalvo both apply this theory to videogames but emphasise different aspects of a game's paratext. Hodges remains within the game itself. He uses paratext and epitext to discuss text files and drivers coming alongside original versions, emulations, or copies of games.[59] This is an important addition to the parts of a videogame as these files accompany every piece of software. Even if a player might not interact with them directly, these "hidden" parts of the game are instrumental to the videogame's functioning.

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[58] Mia Consalvo, "When Paratexts Become Texts: De-Centering the Game-as-Text," *Critical Studies in Media Communication* 34, no. 2 (2017): 177.

[59] James Hodges, "MALware Technical Report: Timothy Leary's Mind Mirror," *Media Archaeology Lab*, last modified October 2016, http://mediaarchaeologylab.com/wp-content/uploads/2016/10/JamesHodges_MindMirror_MALwareTechnicalReport_10-2016-1.pdf.

For her part, Consalvo goes outside of the game, focusing on peripheral material. She uses Peter Lunenfeld's adaptation of Gérard Genette formulation of paratext to digital media. Lunefeld argued that the boundaries of paratext are even more fluid when applied to digital media.[60] Building on this, she argued "the peripheral industries surrounding games function as just such a paratext. Gaming magazines, strategy guides, mod chip makers, the International Game Exchange, Even Balance and other companies, and industry segments work to shape the gameplay experience in particular ways."[61] This approach is closely related to Graham Allen's claim that "there is never a single or correct way to read a text, since every reader brings with him or her different expectations, interests, viewpoints and prior reading experiences."[62] As with literature, every videogame player brings with them different expectations, interests, viewpoints and prior gaming experiences. Additionally, many games come with cheat codes, map editors, or can be modded, something Mia Consalvo addresses in her book *Cheating: Gaining Advantage in Videogames*.[63] The different experiences resulting from these game alterations were not necessarily intended during the development of a videogame. Nevertheless, only preserving the "intended" experience of a game would be to overlook and discredit an entire experience.

How can we incorporate these diverse understandings for preservation and study from a public history point of view? What do these approaches imply for us? Both Mia Consalvo and James Hodges' use of paratextuality expand what is understood as paratext for videogames, exposing the complexity of studying the medium but still are not complete enough. Based on the interpretation of paratextuality as a fluid concept, I propose including all forms fan-labour, such

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[60] Peter Lunenfeld (ed.), *The Digital Dialectic: New Essays on New Media* (Cambridge, MA: MIT Press, 1999) quoted in Mia Consalvo, *Cheating: Gaining Advantage in Videogames* (Cambridge: MIT Press, 2007), 9.

[61] Consalvo, *Cheating,* 9.

[62] Allen, *Intertextuality*, 6-7.

[63] Consalvo, *Cheating.*

as fan fictions; oral histories of game creators and players; video recordings of the game, professional, academic, or otherwise; official and unofficial events; and much more.

Paratextuality is not without its problems. It creates dichotomy – what is in the game and what is outside of it. Consalvo herself warns of the dangers of fixing any text (read games) "as central and others as peripheral."[64] The strong relationship between game creators and players exemplifies this well. The concept of game creation can often be the result of a conversation between these two groups. This is especially true of games which rely on software updates, typically done automatically to modify or improve the game, such as Massive Multiplayer Online Games. Players can voice their grievances and opinions on official forums and social media pages ran by the company who created a game, or when testing early versions of a game. This positions players comments as integral parts of a game's development. The boundaries of what is peripheral and what is part of a videogame is fluid.

To distinguish between the original notion of paratext and how it applies to literature, I have opted to rename paratext as paragame. As such, peritext and epigame should also be renamed perigame and epigame. Renaming this concept when it is applied to videogames and appropriating it distinguishes it from its origin in literary theory. This is a first step in correcting the dichotomy created by paratextuality. Dividing between what is in and around the game stops being useful when all of the potential influences on a game are taken into account. I address this issue with my own hierarchy of nested categories; a heuristic list to help guide the scope of what constitutes paragame, perigame, and epigame by remixing the work of Zabolitzky[65] and Monnens & al.[66] and addding to them. This list is divided into three main categories – "Paragame", "Creator", and

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[64] Consalvo, "When Paratexts Become Texts."
[65] Zabolitzky, "Preserving Software: Why and How," 7.
[66] Monnens & al., "Before It's Too Late," 153.

"Social" – even though the latter two could be still considered paragame. "Social" and "Creator" are separate categories in order to emphasise their importance as material that highlights particular aspects of videogames. The three main categories are subdivided into two: "Paragame" is divided into the "Epigame" and "Perigame" categories, "Creator" is subdivided into "Core" and "Periphery", and social is subdivided into "Company" and "Community".

- Paragame
  - Perigame
    - Original release
      - Code in its various formats, drivers, assets, tools, the resulting binary executables, and object code
    - Emulation
    - Remakes
    - Re-releases
    - Cross-platform releases and ports
    - Backups and illegal copies
    - Special editions
    - Mods
    - Downloadable content
    - Abandonware
  - Epigame
    - Soundtrack released outside of the game
    - Adaptations (book, film, board games, etc.)
    - Live performance of soundtrack
    - Collectibles
    - Paraphernalia
    - Let's Plays
    - Playthroughs
    - Walkthroughs
    - Machinama
    - Video Captures
    - Video tutorials
    - Platform/hardware and their peripherals
    - Original operating system
    - Manuals box and/or jewel case

- ▪ Housing medium
- ▪ Fanfics and fan art, including those pornographic in nature;
- ▪ Boardgames
- ▪ Covers of soundtrack
- ▪ Videogame inspired music (e.g. nintendocore)
- ▪ Cosplay
- ▪ Reviews of the game, both online and in print (this includes video reviews)
- ▪ Peripherals
  - ▢ Dongles
  - ▢ Lensolk or other forms of external copy protection
  - ▢ Feelies
- ▢ Creator
  - o Core
    - ▪ Interviews and oral histories of programmers, designers, sound engineers, audio engineers, translators, tester etc.
    - ▪ Development material
      - ▢ Versions of software, from original prototypes to patches;
      - ▢ Builds
      - ▢ Design documents of all kinds
        - o Artwork, such as conceptual art, sketches, and storyboards
        - o Development-related maps (shadow maps, influence maps, texture maps, etc.)
      - ▢ Development-related correspondence
      - ▢ Scheduling and planning documents
      - ▢ Developer or publisher budgets, forecasting, market research, and other business-related documentation
      - ▢ Other documentation related to the developer and publisher relationship
      - ▢ Company newsletters and circulars
      - ▢ Information on projects, teams, and company structures over time
      - ▢ Photographs and videos of the companies, people, and events (internal)
    - ▪ Advertising and marketing materials, especially pieces used for unique, one-time purposes
    - ▪ Press kits and demos
    - ▪ Legal documentation
    - ▪ Books on software design, development, and software studies;
    - ▪ PowerPoint and other presentations for conferences and meetings;
    - ▪ Archival and business records or personal papers from groups, organizations, and individuals who are associated with the software industry but are not involved in software development

- ▪ subversion, sharepoint, and perforce directories; internal Web sites; notice-board notes and posters; and other collaborative and group media
- ▪ Developer or publisher Web pages
- ▪ Crowdfunding websites and campaigns
  - o Periphery
    - ▪ Oral histories of players and fans
    - ▪ Photographs and videos of the companies, people, and events (external)
    - ▪ Research papers produced by academics
    - ▪ Conferences
    - ▪ Strategy guides
    - ▪ Cheat code books
    - ▪ Clones
    - ▪ Source materials (i.e., writings, film, art, etc., that inspired a game)
- ☐ Social
  - o Company
    - ▪ Official forums
    - ▪ Company organised conventions
    - ▪ Official Contests
    - ▪ Social media pages and accounts
    - ▪ Official Fan Clubs
  - o Community
    - ▪ Community managed forums
    - ▪ Homages, tributes, and parodies
    - ▪ Wikis
    - ▪ Community organised conventions
    - ▪ LAN parties
    - ▪ eSport competition
    - ▪ Meetups
    - ▪ Game jams
    - ▪ Festivals
    - ▪ Community social media pages and accounts
    - ▪ Comment boards
    - ▪ Bulletin boards
    - ▪ Listservs

This list is by no means definitive, as the number of possible material which can be considered as part of the game is extensive. Other scholars could and should also add to the list to make it more complete. Moreover, the position of items is subject to interpretation. Some might put items under different categories, which is why flexibility and fluidity is at the core of this project. By permitting flexibility, the understanding of what constitutes a game proposed by this project opens the door to new and varied positions. Limiting the number of items considered to be part of the game does not allow for the expression of the complexity of videogames and their derivative material.

My position is that everything and anything directly or indirectly related to a videogame is worthy of preservation, as it can tell something about the game to researchers. Realistically, no heritage institution could even attempt to preserve everything. Therefore, institutions and researchers will have to choose on which aspect of videogames they want to focus. As mentioned earlier, there used to be much emphasis on the developmental aspects of videogames and software. While these merit preservation, there are but one of the various aspects of videogames. Games are much more than entertainment, they are art, they are software, but they are also inherently social. They are represented in movies and books, are the source for a plethora of derivative material, such as clothing and toys. All of which hold on to the game's aura.[67]

Bruno Latour and Adam Lowe's understanding of aura helps make sense of videogames' fluid identities, as well as their materials and materialities. They argue that the aura of an original is, in fact, both created and reinforced by the availability of facsimiles. For them, "the real

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[67] The notion of the aura of art pieces was first developed by Walter Benjamin. See "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, 217-51, (New York: Schocken Books, 1968). Benjamin's ideas have been highly influential, such that he has his own entry in the Stanford Encyclopedia of Philosophy. For more information, see "Walter Benjamin," Stanford Encyclopedia of Philosophy, last modified July 22, 2015, https://plato.stanford.edu/entries/benjamin/.

phenomenon to be accounted for is not the punctual delineation of one version divorced from the rest of its copies, but the whole assemblage made up of one —or several— original(s) together with the retinue of its continually re-written biography."[68] In other words, the original cannot be separated from its copies. It is the very existence and prolific nature of reproductions that produce an aura of authenticity combined with the original that gives weight to a piece of art. This is profoundly important, especially given that one of the fundamental function of a computer is to make copies and then perform manipulations on those. Games are copied, ported to other platforms, adapted, reinvented, and reimagined; be it as games, other media, or memorabilia. All of these different iterations have the potential to hold the "original's" aura. The development and derivative material, copies, and even references in other media – such as film, magazines, or online forums – contribute maintaining a videogame's aura. There is no single and unique object that hold that aura; everything has the potential to hold on to it. Videogames are therefore assemblages.

Going back to the last quote by Latour and Lowe, they also use the word assemblage in their description of the aura. But what of "assemblage"? While Latour and Lowe may not have been thinking of the word other than as a descriptor for a grouping of relationships, the idea has been formalised by Manuel DeLanda, drawing on Gilles Deleuze and Félix Guattari. In *A New Philosophy of Society: Assemblage Theory and Social Complexity,* DeLanda defines assemblages as "wholes whose properties emerge from the interactions between parts."[69] Understanding videogames as assemblages relates back to intertextuality. A text that inspired a game would be

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[68] Bruno Latour and Adam Lowe, "The Migration of the Aura, or How to Explore the Original Through its Facsimiles," in *Switching Codes: Thinking through Digital Technology in the Humanities and the Arts,* ed. Thomas Bartscherer and Roderick Coover (Chicago, IL: University of Chicago Press, 2011), 4, accessed on April 18, 2018, http://www.bruno-latour.fr/sites/default/files/108-ADAM-FACSIMILES-GB.pdf.

[69] Manuel DeLanda, *A New Philosophy of Society, Assemblage Theory and Social Complexity* (New York: Continuum, 2006), 9.

considered as one of the parts of the assemblage that is a game. For instance, the novel *The Hitchhiker's Guide to the Galaxy*[70] would be part of the *The Hitchhiker's Guide to the Galaxy* computer game[71] assemblage, as would the film, the radio and TV series, and stage shows. The properties of that assemblages would therefore be a result of the book and the other parts of the *The Hitchhiker's Guide to the Galaxy* computer game assemblage.

DeLanda goes further and argues that the theory must "account for the *synthesis* of the properties of a whole not reducible to its parts" (italics in original) and that "parts of an assemblage do not form a seamless whole."[72] As a result the parts making up an assemblage might appear unrelated to one another, but still, these parts constitute the whole. Parts are not simply defined by the whole. DeLanda's example of market-places illustrates this notion well. He argues that "scaled economic units must be regarded as an individual singularity bearing a relation of part-to-whole to the immediately larger one, much as organisms are related to species."[73] Parts might constitute a whole, but they should not be interpreted as only having meaning in terms of the whole they make. DeLanda argued that "unlike wholes in which parts are linked by relations of interiority (that is, relations which constitute the very identity of the parts) assemblages are made up of parts which are self-subsistent and articulated by relations of exteriority, so that a part may be detached and made a component of another assemblage."[74] Put differently, no part of an assemblage is restricted to one assemblage. This understanding of assemblage theory allows for much flexibility and permits an understanding of assemblages as inherently dynamic. Manuel Delanda calls this

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[70] Douglas Adams, *Hitchhiker's Guide to the Galaxy* (New York: Pan Books, 1979).

[71] Infocom, Inc, *The Hitchhiker's Guide to the Galaxy (*Cambridge, MA: Infocom, Inc., 1984).

[72] DeLanda, *A New Philosophy of Society, Assemblage Theory and Social Complexity*, 4.

[73] Ibid.

[74] DeLanda, *A New Philosophy of Society, Assemblage Theory and Social Complexity*.

flexibility and fluidity "a space of possibilities."[75] Assemblages should therefore not be seen as closed systems, but rather as interrelated systems capable of influencing and being influenced.

Parts of assemblages are better understood as articulations. They are defined by Jennifer Daryl Slack and J. Macgregor Wise as "dynamic interminglings that can move in many and various directions, propelled by various and changing circumstances (of other articulations). The "web" of these particular articulations is what [they] call an assemblage."[76] They stress the fact that though articulation form identities or unities, "these articulations are neither necessary nor permanent."[77] In fact, Slack and Wise describe assemblages as being "made up of multiple (corresponding, noncorresponding, and contradictory) articulations" in which "change takes place in the dynamic tensions among the articulations that constitute an assemblage."[78] There is much place for flexibility and fluidity in these understanding of assemblages and articulations. While it could be argued that this interpretation could cause confusion in the understanding of an assemblage, making a whole too stable risks oversimplifying and denying the dynamic aspects of assemblages and their articulations.

Slack and Wise also state that, in articulations, "no single force or relationship takes the center stage, and that the context is more heterogeneous."[79] For the scholar of videogames interested in a preservation strategy that does justice to the idea of game-as-assemblage, this concept enjoins us to consider every possible articulation of an assemblage to have the potential to hold the aura of the assemblage itself. Every part of a videogame can teach something about the game, from LAN parties to fan labour. Players and fans appropriate these games and sometimes

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[75] Ibid, 33.
[76] Jennifer Daryl Slack and J. Macgregor Wise, *Culture and Technology: A Prime*r, second edition (New York: Peter Lang, 2015), 133.
[77] Ibid, 152.
[78] Ibid, 133.
[79] Slack and Wise, *Culture and Technology,* 127.

create entire storylines within a videogame's universe. These can tell us much on how the game and its story is interpreted and appropriated. Videogames are inherently social and not considering what fans create is to disregard the creativity, work, and experience of players. Understanding parts as equal in their effect on the assemblage pushes the interpretation of games beyond what is on the screen or even on the panels of an arcade cabinet.[80]

Videogames are also technologies, something Slack and Wise discuss in detail. For them, "technologies *are* assemblages, in that they are made up of webs of corresponding, noncorresponding, and contradictory articulations. Therefore, no technology has one single essence, definition, purpose, role, or effect" (emphasis in original).[81] Understanding videogames as such is necessary to appreciating their nature. For some, videogames are pure entertainment devoid of meaning, but for others, they are art of the highest quality. There is some truth to both positions, yet these definitions are also flawed. Putting videogames in one box or attempting to impose one meaning to them limits possibilities concerning the study and analysis of this relatively new medium.

As mentioned earlier, videogames bring together multiple art forms and cultural products; they draw from literature, film, drawing, and many others.[82] Videogames pull from art that came before it, becoming, in a way, an assemblage of artforms. And each artform composing games has residual effects on videogames. When discussing culture, Raymond Williams describes the notion of articulation of the residual as being "effectively formed in the past, but […] still active in the cultural process, not only and often not at all as an element of the past, but as an effective element

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[80] Raiford Guins and Andrew Reinhard, "Raiford Guins & The History of Games - Episode 8," April 15, 2017, in *8Bit Test Pit*, podcast, MP3 audio, 41:40, accessed April 16, 2018, https://www.archaeologypodcastnetwork.com/8btp/.

[81] Slack and Wise, *Culture and Technology,* 133.

[82] Donovan, *Replay.*

of the present."[83] Charles R. Acland notes that "for Williams, the residual, emergent, or dominant can refer to experiences, practices, values, artifacts, institutions, and meanings.[84] For preservations purposes, videogames are considered artifacts, and therefore Williams' notion is useful in understanding them. Videogames are and were defined and created in a particular timeframe. As they evolve, and as culture evolves around it, their meaning and how they are understood also changes. What was once thought as pure entertainment becomes an artform with complex origins and meanings. This becomes even more meaningful as videogames are currently the subject of much nostalgia, while being decidedly thought of in presentist terms. Early videogames were limited in their displays, storylines, and controls due to technological limitations and simply due to the fact that they were a novel medium. All of these limitations have been lessened or worked around in the now roughly 60 years of videogames history. But older videogames are still often compared to their more recent counterparts. They are reinvented and reconsidered as time changes while still retaining the residues of the culture, art, ideologies, and technologies of that came before them. Since videogames are assemblages, they are not static.

Videogames are assemblages of many different origins and the combination of arts forms, culture, and technologies. They are also social and, as a result, defined by their users. Players are parts of these assemblages. Therefore, they should be involved in the study and preservation of this medium.

Public History and Engagement

The public-facing aspect of my research might have reasonably been expected to be as a kind of game. Instead, it takes the form of a podcast. Podcasting enables public engagement, the

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[83] Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1977), 122.
[84] Charles R. Acland, *Residual Media* (Minneapolis: University of Minnesota Press, 2007), xxi.

sharing authority, accessibility, and wider dissemination which are important in the context of the present research, because of the collaborative nature of videogaming and its preservation. The technical bar to creating and disseminating a podcast is low and is getting lower with each passing year. It is precisely for this same reason that video-podcasts, vlogs, and let's plays have also taken off as a form: it allows players to engage in videogame criticism. These media bypass possible gatekeepers inherent to many medium, including academic journals. My training as a public historian and the social aspects of videogames pushed me to create something accessible and engaging. There is still a long-held common misconception that they are a solitary activity. While it is true that some games are meant to be played alone, this does not mean they have no social potential. The considerable number of forums, competitions, magazines, and schoolyard discussions based around this medium are a solid example of this. Therefore, I wanted to keep some of this social nature of games.

The initial efforts at videogame preservation where spearheaded by collectors and fans. Some of them created online databases dedicated to the preservation of videogames, such as Moby Games[85] and Giant Bomb[86], while others gathered information on cancelled games, such as Unseen 64.[87] The Internet Archive (IA), a non-profit devoted to building a digital library of Internet sites and other cultural artifacts in digital form,[88] has also been preserving videogame. They consider digital games to fall under its remit because they are both cultural artifacts and the IA preserves software. Many heritage scholars – such as Henry Lowood and Jon-Paul Dyson – and game research centers – such as the LUDOV, the Residual Media Depot, and the Strong

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[85] "Video Games Database. Credits, Trivia, Reviews, Box Covers, Screenshots - MobyGames," Moby Games, accessed April 19, 2018, https://www.mobygames.com/.

[86] "Giant Bomb - Video game reviews, videos, forums and wiki.," Giant Bomb, accessed on April 19, 2018, https://www.giantbomb.com/.

[87] "Unseen 64: Beta, Cancelled & Unseen Videogames," Unseen 64, accessed on April 19, 2018, https://www.unseen64.net/.

[88] "About." The Internet Archive, accessed April 14, 2018, https://archive.org/about/.

Museum of Play – have endeavoured to correct this. Nevertheless, the aforementioned non-academic sources are the best heritage professionals and scholars have to work with if they are researching videogames. Raiford Guins addresses this situation when discussing the use of such sources by academica. He argues that "works that may have once seemed 'nonacademic or lacking in seriousness' are now valuable primary sources."[89] In the case of videogames, scholars are forced to use non-academic sources as there was not much done by academia on the subject. Since, until recently, much of the work for videogame preservation was done by the public, it felt only natural to create something public and accessible. Heritage institutions and preservation scholars must therefore work with an assemblage of sources, ranging from public to academic and everything in between.

This project emphasises the need for a democratic approach to conducting research, a position which has deep roots as demonstrated by Steven High.[90] In addition to acknowledging the contributions of vernacular culture to videogame preservation, Deadplay also draws inspiration from scholars like Michael Frisch[91] and Steven High,[92] and advocates for the sharing of authority. Part of the project included conducting nineteen interviews in which both parties would have the control over how research was conducted, in an effort to create relationships with those studied. If an interviewee did not want to answer a question, wanted something removed from the interview, or wished to remove themselves from the project, they had opportunities to do so. Furthermore, every quote from the interviewees were vetted though the interviewees before they could be used

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[89] Raiford Guins, *Game After: A Cultural Study of Videogame Afterlife* (Cambridge: The MIT Press, 2014), 25 quoted in James A. Hodges, "How do I Hold this Thing? Controlling Reconstructed Q*berts," *New Media & Society* 19, no. 10 (2017): 1585.

[90] Steven High, "Sharing Authority: An Introduction," *Journal of Canadian Studies* 43, no. 1 (2009): 13.

[91] See Michael Frisch, "Sharing Authority: Oral History and the Collaborative Process*." Oral History Review* 30, no. 1 (2003): 111-13 and Michael Frisch, *A Shared Authority: Essays on the Craft and Meaning of Oral and Public History* (Albany: State University of New York Press, 1990).

[92] High, "Sharing Authority."

in the podcast. I attempted to be as open as possible with the interviewees and wanted them to be as open as they were willing to be. This practice attempts to give as much power to the people researched than the scholar or academic researching them. It also attempts to convey the notion that both interviewer and interviewees are active participants, which in turn can promote a sense of engagement.

In the introductory episode, I describe how I wanted to engage the public and why the podcast format seemed appealing. Sadly, academic writing is not typically accessible to most of the public, due to its high level of linguistic complexity and reliance on theoretical and philosophical approaches. Therefore, writing an academic essay and posting it online would not have been conductive to promoting interest and engagement from the public. While academics might want to elevate the public, it would be counterproductive to approach said public on our own terms – there needs to be compromise. This is a compromise in approach, not in thought or ethics. Complex ideas can be conveyed through simple language, even if this might be perhaps more challenging than using academic language.

There is also a class aspect to the accessibility of academic writing. Many journals are behind publisher pay-walls and books can be often quite expensive, making it difficult to access for people without institutional subscriptions. As podcasts can be downloaded on a smartphone, MP3 player, or computer, they are fairly accessible. Creating a short documentary or a videogame could have been an option, but the portable nature of podcast made it better tailored to reach a wider audience.

It felt only natural to attempt to maintain some of the audiovisual nature of the videogame medium. Many people who enjoy videogames have stories of being so immersed in a game that they had lost the notion of time passing, myself included. Many of us have sat down in front of

our computers or TV screens only to realise, several hours later, that the sun had gone down. These very personal, intense, and intimate experiences are echoed by radio, and by extension podcast, especially when listened to using headphones. Sound is innately intimate, and radio engenders a response from listeners at both a sensory level and a substantive level.[93] Since videogames and podcast can both elicit such reaction, it seemed like the logical choice.

The project also involves the creation of a website and a Facebook page. Podcasts typically have websites used to host its audio files, contact information, and other resources. For Deadplay, the website will also house much of the material that could not be include in an audio-only format, such as video recordings of the games and screen captures, as well as complementary information, such as a further reading list. Furthermore, to promote openness and accessibility, the website will house the podcast's script. This will let the audience read along while listening to the podcast, or simply read it if they are deaf or hard of hearing. It will be downloadable in PDF format and simply posted on the website. The latter version of the script will have a Hypothes.is overlay,[94] which is described by Tim Farley of the James Randi Educational Foundation as "a peer review layer for the entire Internet."[95] Hypothes.is will let users annotate and comment the script, making this project collaborative and community oriented.

As the project attempts to reach a wider audience and to promote engagement and discussion, it will also use social media. Facebook holds the potential to connect a diverse group of individuals all across the world and is tailored for communicating and engaging in discussions. There are other social media platforms, but as Facebook is popular and well-known, and has the

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[93] Siobhan McHugh, "Oral History and the Radio Documentary/Feature: Introducing the 'COHRD' Form," *Radio Journal: International Studies in Broadcast and Audio Media* 10, no. 1 (2012): 36, https://doi.org/10.1386/rjao.10.1.35_1.

[94] For more information see "To enable a conversation over the world's knowledge: Hypothesis Mission," About Us, Hypothesis Project, accessed April 18, 2018, https://web.hypothes.is/about/.

[95] Tim Farley, "Hypothes.is Reaches Funding Goal," last modified 17 November 2011, http://archive.randi.org/site/index.php/swift-blog/1524-hypothesis-reaches-funding-goal.html.

imbedded option of creating communities; it felt like the best choice. The website could have included a comment section or a forum but using already existing resources seemed more manageable and effective. Lastly, there already exists many groups of videogame fans and game scholars, as well as other academic organisations on the platform. I am part of the Historical Game Studies Network, Graduate Students' Committee of the Canadian Historical Association, International Federation for Public History, and Capital Heritage Professionals Network Facebook groups. There is great potential in creating communities of scholars, heritage professional, collectors, and players to push this project forward.

There many platforms and tactics available for scholars to make their work accessible and collaborative. Deadplay attempts to use these in order to create a greater community. One cannot limit themselves to one tactic in the hopes that they will reach a wider audience. In addition, practices for videogame preservation are diverse and varied, ranging from emulation to preserving development materials, and including oral histories of game creators and player. Each of these practices have the potential to capture parts, or articulations of videogames. It is by combining them that heritage scholars can devise standardised practices for software and videogame preservation. In essence, I am attempting to use an assemblage of tactics to push forward videogame preservation and make it public.

Conclusion – Until Yet a Few More Deaths Do Us Part[96]

Videogames are a relatively new art form and cultural product. They have been studied from various perspectives from education, to economics, to psychology, to design. However, videogames have not been studied from a perspective that situates the nostalgia for "dead" games,

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[96] Unexpect, *Until Yet a Few More Deaths Do Us Part,* independently released, track 11 on *Fables of the Sleepless Empire,* May 31, 2011, compact disc.

games that can no longer be played, in a broader historical consciousness. James Newman warned that videogames are disappearing.[97] While a handful of dedicated fans have put much effort in preserving videogame heritage, they are still at great risk of dying. Heritage scholars and institutions have started to show interest in their preservation. But the many issues surrounding the preservation of digital material – bit rot, hardware failure, format obsolescence, and copyright law – have slowed down preservation efforts.

Still, before devising ways to preserve games, there needs a restructuring of how videogames are understood. They both are and are not text, are and are not film, are and are not software, are and are not material. Videogames are assemblages occupying a liminal space as technology, culture, and art form. Theory and practices for other media can be applied to this new one, but once cannot do so blindly. Preserving and studying videogames requires fluidity, flexibility, and adaptability. They also both encourage socialisation and are the result of it. Videogames are complex and they require that scholars, academics, and players think of them as such.

Being software, videogames are also digital objects. Therefore, preserving them simply as physical artifacts is not enough. Kenneth Thibodeau argues "to preserve digital objects, we must be able to identify and retrieve all its digital components."[98] While this is true, videogames also physical. To preserve them effectively, Thibodeau's claim must be taken one step further. Physical material relating to the object – not only those that are directly related to them, or even actively part of said object – must be preserved. Deadplay presents a first *essaie* in this direction.

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[97] Newman, *Best Before*, 1.

[98] Kenneth Thibodeau, "Overview of Technological Approaches to Digital Preservation and Challenges in the Coming Years," accessed April 20, 2018, https://www.clir.org/pubs/reports/pub107/thibodeau/.

Bibliography

Acland, Charles R. *Residual Media*. Minneapolis: University of Minnesota Press, 2007.

Adams, Douglas. *Hitchhiker's Guide to the Galaxy*. New York: Pan Books, 1979.

Allen, Graham. *Intertextuality: The New Critical Idiom*. New York: Routledge, 2000.

American Historical Association. "Archive of Past AHA Annual Meetings." Accessed April 16, 2018. https://www.historians.org/annual-meeting/past-meetings-archive.

Arsenault, Dominic. "Shovel Knight Redug: The Retro Game as Hypertext and as Uchronia." *First Person Scholar*. Last modified November 16, 2015. http://www.firstpersonscholar.com/shovel-knight-redug/.

Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction." In *Illuminations*, 217-51. New York: Schocken Books, 1968.

Bill C-11, *An Act to Amend the Copyright Act, 1rst session, 41rst parliament, 2011-2012, June 29, 2012, Statutes of Canada 2012,* http://www.parl.ca/DocumentViewer/en/41-1/bill/C-11/royal-assent/.

Canadian Historical Association. "Annual Meeting." Accessed April 16, 2018. http://www.cha-shc.ca/english/what-we-do/annual-meeting/annual-meeting.html#sthash.WTop9JSg.dpbs.

Consalvo, Mia. "When Paratexts Become Texts: De-Centering the Game-as-Text." *Critical Studies in Media Communication* 34, no. 2 (2017): 177-183.

Consalvo, Mia. *Cheating: Gaining Advantage in Videogames*. Cambridge: MIT Press, 2007.

Costikyan, Greg. "Danielle Bunten Berry (1949–1998)." The Encyclopedia of Arkansas History & Culture. Last modified September 26, 2017. http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=4524.

Davis, Natalie Zemon. "Movie or monograph? A Historian/Filmmaker's perspective." *The Public Historian* 25, no. 3 (2003): 45-48.

Davis, Natalie Zemon. "Un Débat en Coulisses: Trumbo, Kubrick et la Dimension Historique de Spartacus, 1960." *Actes De La Recherche En Sciences Sociales* 161-162, no. 1 (2006): 80-95.

Davis, Natalie Zemon. *Slaves on Screen: Film and historical vision.* Toronto: Vintage Canada, 2000.

Davis, Natalie Zemon. *The Return of Martin Guerre*. Cambridge, MA: Harvard University Press, 1983.

Dean, David. "Negotiating Accuracy and Authenticity in an Aboriginal King Lear." *Rethinking History* 21, no. 2 (2017): 255-73.

Dean, David. "Theatre: A Neglected Site of Public History?" *The Public Historian* 34, no. 3 (Summer 2012): 21-39. https://doi.org/10.1525/tph.2012.34.3.21.

Dean, David. "Staging the Settlement: Shekhar Kapur and the Parliament of 1559." *Parliamentary History* 34, no.1 (February 11, 2015): 30-44.

Skot Deeming. Interview by Dany Guay-Bélanger. November 24, 2017.

DeLanda, Manuel. *A New Philosophy of Society, Assemblage Theory and Social Complexity*. New York: Continuum, 2006.

Donovan, Tristan. *Replay: The History of Video Games*. East Sussex: Yellow Ant (2010).

Entertainment Software Association. "Essential Fact about the Computer and Videogame Industry." Annual research report, 2017. Accessed April 20, 2018. http://www.theesa.com/wp-content/themes/esa/assets/EF2017_Design_FinalDigital.pdf.

Farley, Tim. "Hypothes.is Reaches Funding Goal." James Randi Educational Foundation. Last modified November 17, 2011. http://archive.randi.org/site/index.php/swift-blog/1524-hypothesis-reaches-funding-goal.html.

Frisch, Michael. "Sharing Authority: Oral History and the Collaborative Process." *Oral History Review* 30, no. 1 (2003): 111-13.

Frisch, Michael. *A Shared Authority: Essays on the Craft and Meaning of Oral and Public History*. Albany: State University of New York Press, 1990.

Giant Bomb. "Giant Bomb - Video game reviews, videos, forums and wiki." Accessed on April 19, 2018. https://www.giantbomb.com/.

Glas, René, Jesse de Vos, Jasper Van Vught, and Hugo Zijlstra. "'Let's Play' Videos, Game Preservation, and the Exhibition of Play." In *The Interactive Past: Archeology, Heritage & Videogames,* edited by Angus A.A. Mol, Csilla E. Ariese-Vandemeulebroucke, Krijin H. J. Boom, and Aris Politopoulos, 135-151. Leiden: Sidestone Press, 2017. https://www.scribd.com/embeds/348615539/content?start_page=1&view_mode=scroll&access_key=key-GKqNp4lJ1kYgWbo34HgU&show_recommendations=false.

Guay-Belanger, Dany, Tom Everett, and Sean Tudor, "Canada Science and Technology Museum – Digital Preservation Research Report." Research report, Ingenium, 2017.

Guins, Raiford and Andrew Reinhard. "Raiford Guins & The History of Games - Episode 8." *8Bit Test Pit*. April 15, 2017. Podcast, MP3 audio, 41:40. Accessed April 16, 2018. https://www.archaeologypodcastnetwork.com/8btp/.

Guins, Raiford. *Game After: A Cultural Study of Videogame Afterlife*. Cambridge: The MIT Press, 2014.

Harman, Mark. "Why Source Code Analysis and Manipulation Will always be Important." *10th IEEE International Working Conference on Source Code Analysis and Manipulation* (2010). https://doi.org/10.1109/SCAM.2010.28.

High, Steven, "Sharing Authority: An Introduction." Journal of Canadian Studies 43, no. 1 (2009): 12-34.

Hodges, James A. "How do I Hold this Thing? Controlling Reconstructed Q*berts." *New Media & Society* 19, no. 10 (2017): 1581-1598.

Hodges, James A. "MALware Technical Report: Timothy Leary's Mind Mirror." *Media Archaeology Lab*. Last modified October 2016. http://mediaarchaeologylab.com/wp-content/uploads/2016/10/JamesHodges_MindMirror_MALwareTechnicalReport_10-2016-1.pdf.

Hypothesis Project. "To Enable a Conversation over the World's Knowledge: Hypothesis Mission." About Us. Accessed April 18, 2018. https://web.hypothes.is/about/.

Infocom, Inc. *The Hitchhiker's Guide to the Galaxy.* Cambridge, MA: Infocom, Inc., 1984.

Koenig-Woodyard, Chris, "Gérard Genette, Paratexts: Thresholds of Interpretation. Translated by Jane E. Lewin and foreword by Richard Macksey. Cambridge: Cambridge University Press: 1997. ISBN: 0-521-41350-8 (hardback), 0-521-42406-2 (paperback). Price: £50 (hardback), £16.95/$29.95 (paperback)." Review of *Paratexts: Thresholds of Interpretation,* by Gérard Genette. *Romanticism on the Net* 13, February 1999. https://www.erudit.org/en/journals/ron/1999-n13-ron425/005838ar/.

Kott, Katherine. "Digital Repository Best Practices for Cultural Heritage Organizations." Best practices document, *Computer History Museum*, February 3, 2012. http://www.computerhistory.org/atchm//wp-content/uploads/2012/09/Best_Practices_Report_2012-02.pdf.

Latour, Bruno and Adam Lowe. "The Migration of the Aura, or How to Explore the Original Through its Facsimiles." In *Switching Codes: Thinking through Digital Technology in the Humanities and the Arts,* edited by Thomas Bartscherer and Roderick Coover. Chicago, IL: University of Chicago Press, 2011. Accessed on December 12, 2017. http://www.bruno-latour.fr/sites/default/files/108-ADAM-FACSIMILES-GB.pdf.

Lowood, Henry, "Replay: Games, Performance, Preservation." Presentation at Concordia Media History Research Centre, Montreal, Quebec, Canada, November 10, 2017.

Lunenfeld, Peter (ed.). *The Digital Dialectic: New Essays on New Media.* Cambridge, MA: MIT Press, 1999.

McHugh, Siobhan. "Oral History and the Radio Documentary/Feature: Introducing the 'COHRD' Form." *Radio Journal: International Studies in Broadcast and Audio Media* 10, no. 1 (2012): 35-51. https://doi.org/10.1386/rjao.10.1.35_1.

Meerzon, Yana, Kathryn Prince, and David Dean. *History, Memory, Performance*. New York: Palgrave Macmillan, 2015.

Moby Games. "Video Games Database. Credits, Trivia, Reviews, Box Covers, Screenshots - MobyGames." Accessed April 19, 2018. https://www.mobygames.com/.

Monnens, Devin, Zach Vowell, Judd Ehtan Ruggill, Ken S. McAllister, Andrew Armstrong, and Lowood, Henry (ed.). "Before It's Too Late: A Digital Game Preservation White Paper." *American Journal of Play* 2, no. 2 (Fall 2009): 139-166.

Murphy, David. "Hacking Public Memory: Understanding the Multiple Arcade Machine Emulator." *Games and Culture* 8, no. 1 (2013): 43-53.

Newman, James. *Best Before: Videogames, Supersession and Obsolescence*. New York: Routledge, 2012.

Nintendo DS Lite. 2015.0343.001. Ingenium Communications Collection. Ottawa, Ontario, Canada.

Owens, Trevor. *The Theory and Craft of Digital Preservation*. Baltimore: Johns Hopkins University Press, 2018.

Rejack, Brian. "Toward a Virtual Reenactment of History: Videogames and the Recreation of the Past." *Rethinking History* 11, no. 3 (September 2007): 411-425.

Research Libraries Group and Online Computer Library Center. "Trusted Digital Repositories: Attributes and Responsibilities." Report, *Research Libraries Group*, Mountain View, CA, May 2002. https://www.oclc.org/content/dam/research/activities/trustedrep/repositories.pdf.

Rogowski, Stephen J. "Floppy Disk." In *Encyclopedia of Computer Science*, third edition, edited by Anthony Ralston and Edwin D. Reilly, 557-558. New York: Van Nostrand Reinhold, 1993.

Shannon, Claude E. "A Mathematical Theory of Communication." *Bell System Technical Journal* 27, no. 3 (July 1948): 379-423. https://doi.org/10.1002/j.1538-7305.1948.tb00917.x.

Slack, Jennifer Daryl and J. Macgregor Wise. *Culture and Technology: A Primer*. Second edition. New York: Peter Lang, 2015.

Smithsonian American Art Museum. "Playing Pong in 2100: How to Preserve Old Videogames - Part One." filmed August 18, 2012 at Playing Pong in 2100: How to Preserve Old Videogames, Washington, DC. Video, 1:33:00, https://www.youtube.com/watch?v=g__noQCDZsc.

Software Preservation Society. "Bit Rot." Last modified May 07, 2009.
    http://www.softpres.org/glossary:bit_rot.

Stachniak, Zbigniew. "Notes on Software Recovery and Preservation." Presentation at Canadian
    Science and Technology Museum, Ottawa, ON, April 25, 2014.

Stanford Encyclopedia of Philosophy. "Walter Benjamin." Last modified July 22, 2015.
    https://plato.stanford.edu/entries/benjamin/.

Stanford Libraries. "Video Game Preservation Workshop: Setting the Stage for Multi-Partner
    Projects." Accessed April 18, 2018. https://www.eventbrite.com/e/video-game-
    preservation-workshop-setting-the-stage-for-multi-partner-projects-tickets-
    39405135822?utm_source=eb_email&utm_medium=email&utm_campaign=event_remin
    der&utm_term=eventname.

Symposium Annuel Histoire du Jeu. "Symposium Annuel Histoire du Jeu." Accessed April 18,
    2018. https://www.sahj.ca/.

The Internet Archive. "About." Accessed April 14, 2018. https://archive.org/about/.

Thibodeau, Kenneth. "Overview of Technological Approaches to Digital Preservation and
    Challenges in the Coming Years." Accessed December 8, 2017.
    https://www.clir.org/pubs/reports/pub107/thibodeau/.

University of British Columbia. "Bill C-11: The Copyright Modernization Act." Copyright at
    UBC. Accessed August 17, 2017. http://copyright.ubc.ca/guidelines-and-
    resources/support-guides/bill-c-11-the-copyright-modernization-act/.

Unexpect. *Until Yet a Few More Deaths Do Us Part.* Independently released. Track 11 on
    Fables of the Sleepless Empire. May 31, 2011. Compact Disc.

Unseen 64. "Unseen 64: Beta, Cancelled & Unseen Videogames." Accessed on April 19, 2018.
    https://www.unseen64.net/.

Vowinckel, Annette. "Past futures: From Re-enactment to the Simulation of History in Computer
    Games." In *Historical Social Research / Historische Sozialforschung* 34, no. 2 (128)
    (2009): 322-332.

Watrall, Ethan (ed). "About." *Play the Past*. Accessed April 16, 2018.
    http://www.playthepast.org/?page_id=2.

Watrall, Ethan (ed). "Authors." *Play the Past*. Accessed April 16, 2018.
    http://www.playthepast.org/?page_id=28.

Watrall, Ethan (ed). "Home." *Play the Past.* Accessed April 18, 2018.
    http://www.playthepast.org/.

Whitaker, Bob. "Episode 41: Annoyed with Called of Duty WWII." *History Respawned*. January
    22, 2018. Podcast. 10:25. Accessed April 16, 2018.
    https://soundcloud.com/historyrespawned/episode-41-annoyed-with-call-of-duty-wwii.

Williams, Raymond. *Marxism and Literature*. Oxford: Oxford University Press, 1977.

Wolf, Mark J. P. and Bernard Perron, ed. *The Video Game Theory Reader.* New York:
    Routledge, 2003.

Wolf, Mark J. P. and Bernard Perron, ed. *The Video Game Theory Reader 2*. New York:
    Routledge, 2009.

Zabolitzky, John G. "Preserving Software: Why and How." *Iterations: An Interdisciplinary
Journal of Software History* 1 (September 13, 2002): 1-8.
http://www.cbi.umn.edu/iterations/zabolitzky.html.

Appendix A – Canada Science and Technology Museum – Digital Preservation Research Report

The working report I authored while Garth Wilson Fellow was made available to the official Readers of this MRE courtesy of the CSTM, but in agreement with the CSTM is removed from this copy. Interested readers should inquire with the Canadian Science and Technology Museum.

Appendix B – Ethics Approval Forms

![Carleton University logo – Canada's Capital University]

Office of Research Ethics and Compliance
5110 Human Computer Interaction Bldg | 1125 Colonel By Drive
| Ottawa, Ontario K1S 5B6
613-520-2600 Ext: 2517
ethics@carleton.ca

CERTIFICATION OF INSTITUTIONAL ETHICS CLEARANCE

The Carleton University Research Ethics Board-A (CUREB-A) has granted ethics clearance for the research project described below and research may now proceed. CUREB-A is constituted and operates in compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2).

Ethics Protocol Clearance ID: Project # 108053

Project Team Members: Dany Guay-Belanger (Primary Investigator)
Shawn Graham (Research Supervisor)
Andrew Johnston (Research Supervisor)

Project Title: Deadplay: "Dead" Video Games and Empire [Dany Guay-Belanger]

Funding Source (If applicable):

Effective: **November 07, 2017**   Expires: **November 30, 2018**.

Restrictions:

This certification is subject to the following conditions:

1. Clearance is granted only for the research and purposes described in the application.

2. Any modification to the approved research must be submitted to CUREB-A via a Change to Protocol Form. All changes must be cleared prior to the continuance of the research.

3. An Annual Status Report for the renewal of ethics clearance must be submitted and cleared by the renewal date listed above. Failure to submit the Annual Status Report will result in the closure of the file.If funding is associated, funds will be frozen.

4. A closure request must be sent to CUREB-A when the research is complete or terminated.

5. Should any participant suffer adversely from their participation in the project you are required to report the matter to CUREB-A.

Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 2nd edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

Upon reasonable request, it is the policy of CUREB, for cleared protocols, to release the name of the PI, the title of the project, and the date of clearance and any renewal(s).

Please contact the Research Compliance Coordinators, at ethics@carleton.ca, if you have any questions or require a clearance certificate with a signature.

CLEARED BY: **Date: November 07, 2017**

Andy Adler, PhD, Chair, CUREB-A

Bernadette Campbell, PhD, Vice-Chair, CUREB-A

Appendix C– Oral History Interview Questions

INTERVIEW GUIDE

Note on Life Story Interviewing Methodology – The life story interview is an example of what the Tri-Council calls "emergent research" (see the qualitative methods chapter of the new policy statement). As a result, most of the questions actually asked during the interview are not listed below but emerge from the conversation itself as interviewer and interviewee work things through, often using the life course chronology as a natural structure. The goal here is to understand how video games impacted players and their view of the world within the context of a life lived and remembered. Nonetheless, the interview guide is an essential starting point to the interview as it indicates the research space that the interviewer – at least initially – wants to explore. Of course, these model questions would be customized to the individual being interviewed.

1. **Early Childhood Memories**
   a. Where and when were you born? Tell me about your childhood? Were video games an integral part of it?
   b. When did you play your first video game? What was it and how did you encounter it? Can you describe your experience?
   c. Did you parents approve, disapprove, or not car about the fact that your played video games?
   d. Do you have siblings? As a child, did you play video games with them, or any other family member? Was gaming a family activity?

2. **School Age**
   a. Where did you go to elementary school? Were most kids from families like yours? Where video games a common interest you shared with your friends? Were video games a social activity or a solitary one?
   b. How did you acquire or access video games?
   c. Were there genres or themes you particularly enjoyed at the time?
   d. Where did you go to high school? Did you like school – why/why not? Did you begin a trade? Did you pursue school afterwards? Where? What did you study?
   e. Did you ever want to pursue a career as a game designer at that age?
   f. Did you ever try to create a game? Why, why not?
   g. Was there an underground game trading circle? Did you ever play a copied or hacked version of a game?

3. **Adulthood**
   a. Did you pursue higher education or did you pursue a trade? What career did you end up pursuing?
   b. When you started to work full-time, did this affect your relationship with video games?

c. Did your tastes in video games change? What were you looking for when you acquired a game?

d. Did you have your own family by then? Did/does your partner also play video games? If not, how did they see the fact that you played video games?

e. Do you consider yourself a gamer? If so, when did that happen?

4. **Family/Community Experience**

a. Tell me about your family. How many people live at home? Who are they? Do they play video games?

b. If you have children, do they play video games? Are you the one who introduced them?

c. Did you make online friends when playing games or with whom you play games? Are you part of an online gaming community or group?

5. **Games and their meaning**

a. Do you think games have hidden meanings or are metaphors for the real world? If so, what do you think they are?

b. Do game creators inject their own worldviews in the games they design?

c. Would you consider video games on the same level as other forms of popular culture, like film, television, literature, theater? Are video games different from these other forms of entertainment? Are video games purely entertainment?

d. What do you think of re-releases and remakes of video games? What about emulation?

e. Do you think hackers and crackers have an impact on the video game industry? If so, is it good or bad?

f. Do you think we should preserve old video games? How? Is video capture a solid option? What other options do you think would work? Which games would you like to see preserved/studied?

g. Have you ever watched or recorded live streams of games? What about Esports? And Let's Plays?

6. **Ending**

a. Do you think the popularity of video games will increase or decrease in the future? Will it have an impact on gamers and society more generally?

b. What is the future of video games in your opinion?

c. Is there anything you would like to add or that we missed?