*Chapter 1*

# Real-World Archaeogaming

## Exhuming Atari

> "Archaeology shows us things we are not normally supposed to see."
> —Laurent Olivier, *The Dark Abyss of Time* (2015: 39)

Alamogordo, New Mexico, with a population of just over thirty thousand, is famous because of what it is near: White Sands National Monument, the Trinity atomic bomb testing site, and Roswell. It is also home to the New Mexico Museum of Space History with its marker honoring Ham the space chimp, whose toe is buried there. Alamogordo, an otherwise typical New Mexico town, is in the epicenter of weirdness, contributing to the aura by the grace of a video game legend that should not have been a legend at all.

In April 2014, a documentary film crew helmed by Zak Penn, director of *Incident at Loch Ness* and screenwriter for *Ready Player One,* joined forces with an amateur historian, a group of city workers, and a team of archaeologists to excavate the so-called "Atari Burial Ground" in front of an audience of hundreds of nostalgic gamers, video game media journalists, and industry professionals.[1] The urban legend stated that in 1983, Atari, Inc. trucked millions of copies of *E.T.: The Extraterrestrial,* the "worst game ever made," to the Alamogordo city landfill, dumping them, crushing them by driving over the cartridges, and then covering them with a slab of concrete followed by backfill, making it impossible for the games to be recovered. Penn's team, Lightbox, the entertainment division for Microsoft's Xbox, secured exclusive rights to dig, finding a partner in Joe Lewandowski, a waste management expert for the city who was present at the initial dumping and who later spent years trying to pinpoint the location of the cell (landfill pit) in which the games were buried. The archaeologists (including myself) were invited almost as an afterthought, but we became instrumental in helping to plan and execute the dig.

This would be the first-ever video-game-only archaeological excavation in history (see Figure 1.1). On the surface, the main reason given for the dig was either to prove or disprove the urban legend of the burial. Did Atari really bury the games? Was it just *E.T.*? How many games were buried? Would the games still be playable? The archaeologists had deeper questions (pun intended) that went beyond the myth into understanding mass-produced entertainment, e-waste, and the current culture driven by nostalgia for what was unequivocally discarded as trash.

It should not have been a legend at all. Both the *New York Times*[2] and the *Alamogordo Daily News*[3] ran stories when the dump happened, but this was pre-internet, and the articles were largely lost to time. The story eventually circulated through Usenet groups and chatrooms with the articles resurfacing online as scans to be debated as real or fake, and if real, how to locate the exact spot to dig, knowing full well that the games were possibly thirty feet down and perhaps under a layer of cement of unknown thickness.

The Atari excavation marked a convergence of nearly every pop culture trope associated with how the general public perceives archaeology: a legend (possibly apocryphal), a ragtag team in the desert, a local informant who knows where to dig, treasure (the games), and a curse: over the course of two days of digging, two of the six archaeolo-


**Figure 1.1.** Excavation photo from the Atari Burial Ground, Alamogordo, New Mexico. Photo by the author.

gists were hospitalized, and the dig was effectively shut down by a late afternoon sandstorm, the worst the town's residents had seen that year. Spielberg could not have scripted it better.

The games were found, with over thirteen hundred recovered (out of approximately eight hundred thousand total games dumped, or roughly 0.002 percent). *E.T.* only accounted for roughly 10 percent of the recovered cartridges, with over forty other separate titles catalogued. The myth of the concrete cap was dispelled, but the team did find evidence of cement slurry attached to some of the games. The team was also able to answer a number of other questions: What happens to video game cartridges (and other consumer electronics) when buried in a desert landfill for thirty years? Answer: not much. Many of the cartridges were unbroken and looked playable (but none were). What can the assemblage of games tell us about corporate culture, the video game crash of 1983, of postconsumer waste and how people treated their entertainment commodities? Answer: new inventory always takes precedent over old, and dumping was, for Atari at the time, the cheapest way to make space in their warehouse.

Olivier notes that archaeological time does not stop when sites are abandoned. Time continues to work away at the component matter, which is then assimilated into another environment where, imperceptibly, it holds the memory of other eras (Olivier 2015: 58). This is as true with ancient sites as it is with modern ones. For the myth underlying the dig (or any dig for that matter), it is almost as if archaeological excavation is a Schrödinger's Cat problem: there could be anything down there. Archaeologists might have a pretty good idea about what to expect through research, guidance from primary sources, speaking to local residents, conducting archaeological surveys, and remote sensing. As Olivier writes, "Everything in the earth is floating in uncertainty, in a realm of maybe. Every dig is a necessarily false proposition, for the act of extraction is the act of amputation, of simplistic elimination" (Olivier 2015: 181). To dig is to discover, both to confirm and deny, creating data from the very destruction of the source. And still, exploring the myth was a heroic act (in the Classical sense), delving into the Underworld, a descent, searching for perceived "hidden treasures" (Holtorf 2005: 16–38).

Apart from the fantasy of archaeology that was filmed for the documentary *Atari: Game Over,* the Atari archaeologists were in reality dealing with garbage. The Atari assemblage, buried in a landfill, marked the cartridges' entrance into suspended animation as they waited to be recovered. Garbologist Josh Reno calls this a "reactivation" of the items, regaining meaning (albeit different from the original intent of an

artifact's makers) through excavation (Reno 2013: 267). Because burial happens in a landfill, whatever is dumped becomes collectively labeled "trash." Each dumping is an assemblage of artifacts from one place at one point in time. As such, Reno notes that a landfill becomes an ideal archaeological setting, representing almost an entire cultural formation process (how a site is created by human action) with the trash being a behavioral outcome (Reno 2013: 263–64). There is almost order in the dumping, and in Atari's case there was, with a specific cell dug solely for the warehouse goods brought by the truckload over a few days. Everything was dumped from one place into a single pit then covered with cement slurry, a layer of earth, and then gradually with other non-Atari household waste.

Traditional landfills can tell the social and environmental story of a municipality and its people, but with the Atari dump the landfill now tells a crucial part of corporate history (Atari's) as well as adding content to the history of the so-called video game crash of 1983. It confirmed and also disproved parts of the Atari dumping myth. Holtorf recalls Rathje's Garbage Project, which convincingly showed how material evidence can correct other kinds of evidence such as interview surveys (Piccini and Holtorf 2011: 11). Memory is imperfect, and as the Garbage Project proved, people will say what is socially acceptable when talking about what they throw away. Gaining access to the landfill was crucial for the Atari story for this reason. Atari had at first denied the dumping outright; it then later stated that it had only dumped defective merchandise. But by digging through their garbage, we proved that this was not the case at all. There were hundreds of unsold, unopened games. If we had not been given access to the site, these facts would literally have remained buried, possibly forever. Reno states that garbage reveals the "hidden self" ownership of waste and that control of access to waste sites can be highly contested (Reno 2013: 266–67).

In this instance the archaeologists became garbologists, who, as Reno says, "offer unique contributions to a future-oriented archaeology as well as opportunities to reflect on the role of archaeological practice in shaping and living in that world" (Reno 2013: 271). The archaeologists also gained experience with how to interface with a genuinely interested public, balancing archaeology with nostalgia while explaining digging methods, what was found, what was happening. The Atari dig marked a turning point in public archaeology, not just with digging in front of a live audience and on camera (both of which are rare, if not unique occurrences for any field archaeologist) but also in performing a kind of archaeological theater on the world stage via social media where the story of the games' recovery trended globally and literally

affected the market, specifically eBay, with prices of the 1980s games going up by a factor of ten (and these were not even the games that were recovered during the salvage).

The 2014 Atari excavation was the first dig that solely featured video games, and as such it drew attention to what archaeology could mean when digging artifacts from the recent past in front of a global, public, connected audience. As Piccini and Holtorf spoke about in 2011, "Contemporary archaeologies marry archaeology in the modern world with the archaeology of the modern world" (Piccini and Holtorf 2011: 14). With Atari's 1983 burial happening in the lifetimes of many of the people who came to watch the dig, as well as those who obsessed over its mythology online since the 1990s, we should have predicted the interest in what we were doing at the landfill. "The empathy of events still moist in recent memory should attract a high level of public interest. . . . It awakens conflicts between professional and amateur as to who should be excavating this past" (Brittain and Clack 2007: 39). This conflict was avoided early on by asking the production company how they would handle the archaeology. They didn't know, and they decided to invite us into the narrative they were creating. What would have otherwise been a treasure hunt instead became a way for archaeologists, the media, and the public to work together on a pop culture project.

Part of our involvement was to help control the narrative—or at least introduce an archaeological one—into the story. Archaeologists, as Andrew Gardner writes in "The Past as Playground," are rightly concerned that "responsible" interpretations win out in the battle for public attention and that seriously distorted visions of whatever historical realities on which we ourselves can agree do not contribute to social problems in the present (Gardner 2007: 256). This kind of work has been defined as "recreation archaeology," something that "customizes archaeology to the public and maximizes public appeal" (Moore 2006).

Imbued by mythology and validated by "real" archaeologists trenchside, copies of *E.T.* that sell at retrogaming shops and online for less than ten dollars, boxed with a catalogue and a coupon for Atari's *Raiders of the Lost Ark* game featuring Indiana Jones, would ultimately fetch over $1,000 at auction on eBay and are now being resold by previous buyers for up to $3,000.[4] The games, artifacts by virtue of being non-natural creations of some cultural importance, became highly valued, almost ritual objects defining a generation of players, placing 1980s pop culture front and center. The excavated games became instant collectibles, extraordinarily rare, and valued for their rarity as part of the handful of games that managed to be extracted before the sandstorm closed the

excavation. The irony is that there are at least eight hundred thousand other games buried in that location, which will likely remain underground forever because of expense, local and state politics, environmental restrictions and concerns, and other logistical issues.[5] The sheer size of the assemblage makes it nearly impossible to revisit to excavate completely. Moshenska observed in 2014 that archaeologists of the recent past will be confronted by the problem of scale. "Hardware, software, and content are produced and consumed in mind-bogglingly huge quantities around the world. . . . The detritus of this accelerating process litter the material and digital worlds, and present archaeologists of the modern world with a set of distinct and unusual challenges" (Moshenska 2014: 255). The dig was a once-in-a-generation happening. "The greatest problem facing archaeologists of the digital era will be the incalculable, inhuman enormity of the available material" (Moshenska 2014: 256).

Artifacts have biographies. In the case of an *E.T.* cartridge, we see its creation through the imprimatur of Steven Spielberg in 1982, followed by a deal with Atari, the coding of the game by Howard Scott Warshaw, Atari's Christmas marketing blitz, the resulting sales and then returns of stock, the burial, the excavation thirty-one years later, the dispersal of the assemblage to museums and private individuals worldwide, and even now the resale of some of those same excavated games on auction sites as the original buyers try to flip them for profit. The games are artifacts-as-commodities, but at first they were entertainment and then became trash.

The Atari dig merged history and nostalgia, the reality of a commercial decision, and the shared fantasy of what it was like to play Atari games over thirty years ago. Guins says that game historians "lessen the primacy of nostalgia . . . , resisting the urge to regard this past as hermetically sealed. . . . This allows us to examine the enduring material life-cycles of games that greatly exceed the retro-fascination with ageless games from a historic, idyllic, and more often than not, solipsistic and trivialised past" (Guins 2014: 3). S. C. Murphy recalls that "reading the Atari catalogue was an exercise in consumer anticipation and technological promise" (Murphy 2012: 105). The mystery that helped drive the interest in the excavation was, "How could a beloved company such as Atari ultimately fail?" The answers, as articulated by Atari staff interviewed in the documentary, included sacrificing quality for quantity, glutting the market with badly executed games, and overproducing for consumers and a market that no longer needed or wanted another home console. Atari CEO Ray Kassas destroyed Atari's reputation for quality games, with *Pac-Man* and *E.T.* damaging relationships

with retailers (Stanton 2015: 88–90). Ultimately the crash ended in 1985 with the North American release of the Nintendo Entertainment System (NES) (Wolf 2012a: 2). With Nintendo, however, came quality, fun games; Nintendo also controlled the quality itself instead of farming out creative projects to third-party developers. Nintendo, and later Sony, which launched the PlayStation in 1994, also understood their market and how to reach the consumers (Stanton 2015: 185). By 1994, Sony was marketing to players who had nostalgia for the old games but a thirst for new ones, and Atari was reduced to its logo alone.

The dig itself became a symbol. The burial made the *E.T.* game cartridge an iconic gaming artifact and an icon of the North American video game industry crash of the time (Sotamaa 2014: 4). "The idea was always that the landfill contained just *E.T.* cartridges. Now we can see it was, in reality, Atari's grave, too" (Stanton 2015: 93).

The excavation of the Atari Burial Ground stood nascent archaeogaming on its ear, turning the original premise of conducting archaeology within synthetic spaces into an actual real-world dig where physical games were the artifacts. The window in which other, future similar excavations might occur is small, with the physical media of video games quietly phasing out in the 2010s in favor of online play, digital subscriptions, and downloadable content. It is likely that in the next ten years there will be nothing physical with which to interact, the game artifact becoming fully virtual. How archeologists can discover and interpret that material is the subject of later chapters in this book.

## The Artifacts of Digital Fiction

All video games are archaeological artifacts. The *traditional* definition holds that artifacts are things of cultural/historical significance made by people. For most non-archaeologists, when they think about artifacts, antiquity is implied: artifacts must be old, lost to history until they are recovered through excavation. Physicality is implied: artifacts create material culture as things that can be manipulated in the natural world. Importance and value are also implied: artifacts are shiny, rare, precious, possess some hidden truth about cultures past, and are worth a lot of money.

A more contemporary approach to artifacts sees them as independent of age, of no particular time, part of a past that persists in the present, mundane in their creation and use, physical or virtual, or special not only in their manufacture (either by people or machines) but also in their relationship to a greater context of personal ownership and

interaction with people and with other things, part of a chain of their histories of use.[6]

Video games occupy both interpretations of what an artifact is, merging the natural with the synthetic, connecting that which is able to be touched to that which is able to be experienced. Take any cartridge produced by Atari in the 1970s and 1980s: made of plastic and a chip; labeled; boxed; easy to read, handle, and use. The ubiquity of these cartridges does not diminish their importance as cultural artifacts of their time—it would seem to suggest the opposite: such quantity equates to high demand. Commercially, one can purchase old Atari games on eBay or at flea markets and retrogaming stores for mere dollars, considering many titles retailed for around forty dollars upon release. The games themselves are minor miracles of engineering, and the original and current market prices belie all that went into their creation: development, design, testing, production, marketing, promotion, the work of one creative engineer supported by dozens or hundreds of ancillary personnel. Each cartridge is both sacred and profane, a work of specialized talent and vision, then mass-produced and sold. With that comes data for distribution and sales, reviews, reception, returns; end-of-life for the game and later for the hardware on which it was played; and then a new life for collectors, retrogamers chasing nostalgia or appreciating these games for the miniature masterpieces they were—even the "bad" titles.

Fast-forward to the present, and the majority of games sold/played no longer occupy physical media. The software is ephemeral, run either on dedicated hardware (e.g., Xbox or PlayStation, Mac or PC) or online over the internet with nothing to download. Even though no physical media are present, these games are still artifacts, examples of human creativity and thought complete with histories of ownership and use, from the earliest development stage to their consignment to an archive, or to YouTube and Twitch video-streaming services as memories of what we used to find entertaining and important enough to invest hours of our time in. Video games are our modern epics, our literature, products of our culture, from hobbyists to indie developers to AAA publishers.

Not all artifacts are created equal. Just as there are differences between cooking pots made of coarse clay to elaborately painted fineware, some artifacts are more highly valued (for better or worse) than others, even though the data held within each artifact are arguably equal. As seen with the Atari excavation, value changes when an artifact is invested with myth.

The key to understanding an artifact is in knowing its biography, its history of use. As Olivier describes it, "What we inherit from the past

rarely comes down to us as it was. Things are reinterpreted, repeatedly used in unexpected ways, in a present they had not been intended for. They carry into the present where they are reworked and enhanced. Things hold memory" (Olivier 2015: 28). An artifact is forever. The philosopher Walter Benjamin first considered in 1940 that artifacts are a nucleus of time with a fore- and after-history that diverge at the point of discovery. An object is from the past, yet also exists in the present, and will most likely have a future. Digital game historian Raiford Guins states in his book *Game After* that "objects acquire histories of their own as they move through time and space regardless of our affinity for them" (Guins 2014: 3–4). This biography runs independent of any kind of human agency, although it can only be told through the intervention of the archaeologist.

"Archaeology," according to Olivier, "allows us to explore the processes at work in the formation of artifacts" (Olivier 2015: 190). Artifacts are altered, destroyed, buried, and perhaps rediscovered and preserved as objects bearing witness to the past, and they may then be destroyed and "forgotten" all over again. When we study video games, we study their creation and immediate use as media commodities, as entertainments that often reflect the *tempora* and *mores* in which the games were created. In some instances, such as with the Atari Burial Ground, those artifacts were indeed destroyed and forgotten, then rediscovered and "reactivated," ready for a new chapter in their history. Artifacts such as weapons and armor found by people during gameplay can also be created/discovered, used, and destroyed within a game itself, following similar patterns of use as their real-world counterparts.

The context is complex. As Holtorf described in 2005, "The life histories of things do not end with deposition but continue until the present day. The [meanings of things] cannot be reduced to a single meaning or significance in the past" (Holtorf 2005: 80). The things archaeologists study cannot be separated from the assemblage (a group of artifacts sharing the same context) from which they are removed. Contemporary archaeologists study connections between things and the people who create/use them. These connections include exchange, consumption, discard, and post-deposition (Holtorf 2012: 42–43). "Archaeology," Holtorf argues, "reveals what the present quite literally consists of" (Piccini and Holtorf 2011: 14). People live their lives materially, and our things have an active social aspect to them (Piccini and Holtorf 2011: 20).

Video games are active parts of modern and contemporary material culture and as such have a very real social component. Game and even mainstream media announce the release of an anticipated game. Plat-

forms such as reddit (reddit.com) host thousands of discussions about minute details related to any given game. We review games, play them, inhabit them, share them, customize them to make them our own and to share with a community. Our interactions with games help give them life, and our agency allows games to grow and change. What historical conditions led to the creation of these games and their interactivity is an archaeological question, just as it is when considering the production and use of other, nondigital technologies (Barrett 2012: 162).

Archaeogaming is rife with dualism, easily stepping between the natural and the synthetic. Fewster notes that "modern material culture studies and archaeologies of the contemporary and recent pasts have added immensely to the archaeologist's understanding of the dualist nature of human action and material culture with an awareness that material culture is not passive and reflective but can act back upon us in unexpected ways" (Fewster 2013: 34). When thinking about the archaeology of video games in the real world, archaeologists must consider pop culture, multivocality, performance, and storytelling, something archaeologist Ian Hodder calls "ethnoarchaeology" (Hodder 1982). By understanding the environment surrounding the use of an artifact via ethnography (especially in developer and player culture), we gain valuable insight that aids our archaeological interpretation. We then enter the domain of behavioral archaeologists, who define behavior as the interaction of people and objects (LaMotta 2012: 64). This interaction creates memory, something completely subjective, and something that can either cloud or clarify the use of a particular artifact at a given point in time.

## Gaming Spaces

Just as there are spaces to explore within games, there are also game-related places and spaces to investigate archaeologically. These brick-and-mortar locations include retrogaming stores, where people can purchase pieces of video gaming history; arcades, where people can engage directly with video games past and present; and the offices of game studios where development teams meet to create their products. Gaming spaces provide a wider, human context to the creation and use of games, the spaces themselves having their own biographies.

### *Gaming Spaces: Retrogaming Stores*

Retrogaming falls under the rubric of archaeogaming, more as an applied science of running original software on original hardware (video

games from the 1970s, 1980s, and now 1990s) falls under the rubric of archaeogaming, more as an applied science of running original software on original hardware, replicating the original play experience. While some gaming equipment finds a home in museums such as The Strong: National Museum of Play in Rochester, New York, other "vintage" games and hardware become commodities in retrogaming stores, embodiments of artifactual commerce and nostalgia. One such store is Sore Thumb Retro Games, York, England, about four hundred yards from the University of York's archaeology department.

Sore Thumb immediately appeals to the nostalgic player and to the collector/completionist/fetishist. It is both shrine and shop, a well-lighted cave of organized chaos featuring nothing but console games and equipment. Shelves are packed to the rafters with loose cartridges, boxed games, original documentation, mint condition artifacts, and peripherals (controllers of all kinds), plus plush toys and action figures all related to games and gaming culture (see Figure 1.2). It is the most complete retrogaming store I have ever been in, with an obsessive attention to PlayStation 1 and Sega Dreamcast games (although all retro consoles—including Atari 2600, Intellivision, Colecovision, and others—are well represented).

I have seen something approaching the care of curating salable collections in various antique stores and malls both in the UK and the US, but these places lack a reverence to the items in their care. Retrogame shops are different: they feature nostalgia, but also respect. When I enter a space such as Sore Thumb, I equate it to entering a basilica. One enters, and the transition from the street to the interior is both immediate and pronounced. The doorway serves as *propylaeum,* and one transitions from outside to inside. The atrium comes next, featuring a selection of toys and games, an introduction to what is on offer in the store. You pass the narthex then, the counter at which you pay, transitioning into the nave, the heart of the store, a wide aisle flanked by relics and occasional side aisles leading back to the end of the basilica, the apse, in which one finds reliquaries.

Sore Thumb contains five to six locked glass cases behind which sit perfect examples of games from beloved series from days gone by. The collections are largely complete, like the collected bones of various saints presented to the pilgrim for contemplation and remembrance. There has been trade in holy relics (many of them fake), and there still thrives an active trade in antiquities, both legal and illegal. With retro games, the legality is straightforward (unless someone is selling stolen goods), and provenance (history of ownership) is not important. Archaeological context is largely absent, and collectors know the rar-


**Figure 1.2.** Inside Sore Thumb Games, York, England. Photo by Megan von Ackermann. Used with permission.

ity of the games in which they are interested. Value has already been assigned by the market, both for nostalgic reasons and for difficulty in acquisition.

When I entered Sore Thumb, the person at the counter greeted me and immediately told me that the good, rare stuff was in the cases at the back of the shop. He checked in on me later, pointing out the new acquisitions, including a Sega Dreamcast game now priced at 220 GBP. Had I been a collector, I could have purchased that or any other game in the shop. But I am not a collector. I am an archaeologist, and it troubles me ethically to purchase the things that I study. To some this might seem ridiculous. But for me, it is enough to know that places like this exist in the world, where I can walk in and see something different from month to month, something I've never seen before, that helps me complete the archaeological record of video games that are, in this instance, treated as artifacts (for sale), providing an instant, visual typology, history of use, and a chronology of development of these digital built environments. Places such as Sore Thumb are equal parts shop, holy place, and museum, fulfilling our various needs of exploration, material acquisition, curiosity, and a positive connection to a presumed better time. Nothing like this existed in antiquity, a place to buy old things one used to care about. Retrogame stores are a new kind of space then, a curiosity cabinet where everything is for sale, and anything over thirty years old is as ancient as mummy powder.

### *Gaming Spaces: Arcades*

Readers of any age will likely recall where they played their first video games, and even what game(s) they played. The nostalgia of place and time merges with one of the most crucial memories anyone can create: being handed the controls to something, transitioning from observer to actor. The feeling is the same as learning how to ride a bike, or learning how to drive, or being allowed to lead a hike. The actor is in control, fate in nervous hands.

I first began playing video games in the late 1970s.[7] My dad used to take me once or twice a month to our local video arcade where, like all good dads, he would play me head-to-head in *Asteroids* (which had just come out in 1979) or we'd take turns at *Space Invaders* (1978). I was terrible at both (then again I was seven), which probably says a lot about how far kids have come between now and back then when throttling a joystick and mashing one button at exactly the right time was the pinnacle of difficulty.

These arcades of my preadolescent memory were dark and noisy and filled with kids (mostly boys) of all ages, waiting on lines to play new games, observing the "quarter rule" of arcade etiquette: put your quarter on the deck of the game to get dibs on playing it next. Once my five dollars was spent (usually within twenty minutes, sometimes half of that), I would hang around and watch kids much better than me playing *Pac-Man, Galaga, Centipede.* You want plot? Forget it—these games were all action. The pinball games remained popular, but all the cool kids were going digital, and the really good ones would draw crowds to watch them at work. Arcades were social spaces in the real world, and we all cheered and gasped as things happened beyond the pane of the screen. High scores appeared on the scrolling banner of the games, initials that would remain until the game was unplugged.

My absolute favorite game was Atari's *Star Wars* (1983), with its color, 3D-like vector graphics. I remember playing it in an arcade and giving it all of my money for the unparalleled feeling of flying an X-wing, blasting the tops of turrets, ducking girders in the final run up to deploying torpedoes into the heart of the Death Star. After moving from one town to the next, I searched for this cabinet like some pilgrim until I stumbled across one plugged in at the Ben Franklin hardware store. I played it every day after school, riding my bike over, playing two quarters, and riding home. To me that hardware store became a kind of sacred site, one with personal importance, and a place where I could play (pray?) in solitude, a suburban Mt. Athos near Houston, Texas.

Back in the present, on occasion you can find the rare video arcade that is not tied to children's birthday parties (e.g., Chuck E. Cheese) or that caters to nostalgic grown-ups who want to play arcade games while drinking cocktails and eating a real dinner (e.g., Dave & Busters). There are a couple of old school arcades on the boardwalk in Atlantic City that my brother and I go to between stops at the casinos (where we play table games and stay away from the digital). These still have the old bubblegum stuck everywhere and the smells of fake buttered popcorn and the loud pop music. All is forgotten as soon as we put our heads in the games: *Afterburner, Moon Patrol, Gauntlet.* We tune out and watch each other play.

Barcades are scattered throughout New York City now, harkening back to when video games like *Pong* were diversions for drinkers and you could set your bottle directly on the glass of table-top games like *Pac-Man.* Retrogaming arcades (such as Robot City Games in Binghamton, New York) that approach interactive museum status are also experiencing a resurgence, catering to people my age and older who play to

remember and who also bring their children in to teach them the old ways. The games have become artifacts, and the persistent arcades are now archaeological sites blending the past with the present using players as the connection as they always had. As Kocurek wrote in 2015, "The video game arcade was a visible embodiment of emergent cultural values, the persistence of the video game arcade as privileged cultural site demonstrates an ongoing commitment to these values" (Kocurek 2015: 200).

The social nature of the arcade and the arcade's promise of technological novelty were both huge selling points and kept these spaces popular in the 1970s and early 1980s. The writing on the wall came with the mass deployment of Atari and to a lesser extent Intellivision (a console that my family owned), Colecovision, and others, the first and second generations of consoles for at-home gameplay. All of a sudden, we could play games any time we wanted, and we could play with our friends. There was no more playing surrounded by strangers, and there was no more pay-as-you-go gaming to continue play after a final life was lost in-game. We (or our parents) paid once for a cartridge, and we were set for the weekend or for a year of weekends.

Even as the first cabinets were being installed in arcades in the 1970s, the personal computer market was already positioning itself for home use and ultimately for entertainment. The General Instruments (GI) A4-3-8500 chip aided video game production. In 1977, twenty-two computer systems by fourteen companies were in stores, with over half of these in color. The announcement of the Apple II in 1977 and appearance of TRS-80 in 1977 continued to build enthusiasm for home computing and later home gaming (Wolf 2012b: 83–85). The true impact of home computers and the first consoles (such as the first cartridge-based system, the Fairchild Channel F Video Entertainment System in 1977) would not be felt by arcades for another few years. By the end of 1982, profits in arcade video games began to falter. The United States had ten thousand arcades in 1982; in 1983, eight thousand. This was also the same year in which Atari lost half a billion dollars and when rival Mattel/Intellivision quit the industry (Wolf 2012a: 4). One breath of hope in righting the gaming ship came with the Japanese release of the NES by Famicom. As far as arcades being the main venue of play, this marked the end of an era.

The economy of play then had a very real effect on gaming, as did the advent of being able to actually save your progress. Why go to an arcade to throw money away on a novelty when you could play (and ultimately save) your games and scores? The economy shifted as soon as gaming consoles were introduced, and those gaming palaces were

largely shuttered over the following years. The arcade cabinets are still available for purchase on eBay and elsewhere, for collectors and hobbyists and for those hung up on gaming nostalgia. Places such as Vigamus (Rome's Video Game Museum) are now more museum than arcade, offering playability with ample signage, documentation, prototypes, and recorded interviews of designers and players.

In looking at contemporary gaming, especially with the advent of MMOs such as *EverQuest* and *World of Warcraft,* one begins to see a resurgence in social games, the mix of playing with friends and with strangers, and a merging of one-time payment with pay-as-you-go (i.e., monthly subscriptions). With Xbox and PlayStation, we can also now contribute to global leaderboards for scores, and we can play and communicate with anyone during gameplay, merging gaming with strangers with the comforts of home and other gaming friends (even if those friends are countries away). We have moved away from the physical space dedicated to play, these temples of gaming, into a gray space where we meet inside the synthetic world to explore, to compete, and to communicate. For those children of the 1960s and 1970s who were the nerds, phreaks, and geeks, however, online social gaming has paralleled video game history since the mid-1970s with PLATO and ARPANET and later dial-up modem access to Bulletin Board Services (BBSs) and multiuser dungeons (MUDs). Online social play has always been around, but now it is available to everyone, including players who do not need to understand how online communications work.

The archaeology then is of these older gaming spaces (arcades) and understanding why they were abandoned or repurposed. This was a spatial shift as well as an economic one. Play became portable, but the community of the arcade did not disperse. It just found a bigger venue in which to gather. The bricks and mortar became unimportant. The play's the thing.

The archaeological interest in arcades includes questions asked of abandoned sites: What happened to the original owners/occupants (in this case of the old video arcades)? What did they do once they shuttered their businesses? Where did they go? Do they resent the shift that caused their livelihoods to change? Do they care? And how were these spaces reused? What moved in, and do the current owners/occupants even know that their new ventures are sited atop (and within) a space held sacred by kids of a certain age who now, from time to time, want to put down their new toys in favor of their old ones? In the case of Low Hall Mill, an arcade in Leeds, England, the building remains abandoned, its games covered in dust.[8] Galaxy, an arcade in Philadelphia, was purchased and turned into a cheesesteak restaurant, Jim's Steaks,

which itself closed in August 2017 for health code violations.[9] Buildings remain, but their interiors change to suit new owners and markets, the memories of past uses residing in those who knew what came before and care enough to leave a comment for an online news story about the fate of a particular place. The archaeologist takes an interest in how buildings are repurposed over time, especially those that are built specifically for one thing and then are rebuilt as something else. Barns become taverns. Churches become hotels.

### *Gaming Spaces: Game Development Studios*

The archaeology of real-world gaming spaces/sites extends beyond the arcades and retrogaming stores and into the game developer studios themselves, which have their own histories and leave the footprint of their foundation behind.

The news of the "proposed" closing of acclaimed Lionhead Studios by parent company Microsoft hit the internet hard on March 7, 2016. Creator of the award-winning god game *Black and White* (2001), Lionhead earned its hall-of-fame status through a series of *Fable* games, which attracted the attention (and cash) of Microsoft who ultimately bought the studio in 2006. The greatly anticipated *Fable Legends* was already enrolling people in its multiplayer beta, but Microsoft scrubbed the title.

As an archaeologist, I had questions, some of which are still waiting to be answered as Microsoft and Lionhead continue to work through the process of terminating the studio. From a software perspective, I am wondering what the fate of the legacy games will be (still unknown at the time of writing). Abandonware? Probably not for a while simply because of each game's popularity. One could assume that Microsoft will continue to sell the active and legacy titles via the Xbox store (the URL for Lionhead redirects to there). *Black and White* is another matter, the title having been developed for PC and Macintosh fifteen years ago and is increasingly hard to find outside of occasional listings on eBay and Amazon. The game is still under copyright but could end up as an orphaned work on an abandonware site.

Second, I am curious as to what will happen to the never-to-be-finished *Fable Legends.* It is likely (but as yet unconfirmed) that Microsoft will mothball its intellectual property much like a film studio will save an unreleased film, doing so either permanently or holding the title until it decides the time is right to resurrect it with another developer. The feasibility of that seems doubtful though, bringing on a new team to go through someone else's code. It still remains a mystery if/

how Microsoft plans on archiving Lionhead's games. Microsoft remains mute on the subject.

Going one step beyond, I also want to know if/how Microsoft plans on archiving Lionhead Studios itself, its email, its files, and its physical ephemera (writing, art, storyboards, etc.), as well as bits of its corporate culture. Lionhead started small but grew to around one hundred employees by the time Microsoft broke the news about *Fable Legends.* What artifacts will remain with Microsoft, and what will Microsoft absorb from Lionhead? How will Microsoft make those decisions? What is necessary to keep and why?

Speaking from a more traditional archaeological perspective, what happened to the physical space that once housed Lionhead Studios? The building is situated on Occam Road about a quarter mile from the University of Surrey in Guildford. It is roughly two miles away from Hello Games (*No Man's Sky*). The three-story building screams "university research park" with its clean lines, relatively recent construction, and mirrored windows. The building should have no trouble finding new tenants ready to move in to a space with enough IT infrastructure to enable the computing/data needs of a Galaxy-class starship.

It will be interesting to visit the building on Occam Road in the years following the departure of Lionhead to talk to its tenants about the building's history (as of this writing, the building remains unclaimed). Architecture has its own kind of memory, so what ghosts did Lionhead leave behind? A colleague of mine (who has asked to remain anonymous because of a possible conflict of interest) returned to Lionhead thirteen months after its closure to see what, if anything, had changed. The building is locked, but looking in the windows revealed *Fable* art still adorning the walls even though the space is no longer used for development. There are no signs indicating that the building is for sale or lease. The studio is in limbo, occupied by elements of its past, but not by its people.

One could also ask the question of whether or not this building is important when considering the output of Lionhead Studios under the Microsoft banner. Can we separate space and structure from the resulting intellectual property? The building is certainly a part of gaming history in the fact that *Fable* titles were produced here, but that importance is dwarfed by the artifacts of the games themselves, from the pre-alpha versions to the finished, patched, latest/final editions.

With this kind of nondescript, nondistinct architecture, one might feel a sense of "who cares," but the space is imbued with history nonetheless. When considering the archaeology of Late Capitalism and of the recent past, these buildings are the norm, not the exception. Archaeol-

ogists are faced with corporate designs built for a technology-enabled, fast-moving culture with a demand for huge amounts of data delivered at light speed in a comfortable, well-lit space. It communicates something different than Classical structures that were themselves their own message and monument. We might not see tourists at what was Lionhead Studios, but that should not diminish the importance of place in the history of game design.

It might be that in a corner office somewhere, someone (or many people) left written evidence of this past occupation, not necessarily for others to find but for themselves, to give closure, a farewell from the occupants to the reliable structure they had occupied for years, a thank you (or possibly something nasty pointed at Microsoft), a remembrance that will likely be painted over before the next generation moves in, oblivious.

## When Video Games Change

Video games, like archaeological sites in the natural world, grow and change based on human usage and need. New features and functionality are added. Code is rewritten. Bugs are fixed. Because the changes are code based, it is rare that traces of the replaced snippets and routines remain, making it difficult for the video game archaeologist to determine what happened to a game over its active history. There are other ways to track these changes outside of the games themselves, however.

News broke on August 4, 2015, that major game developer Bungie had parted ways with actor Peter Dinklage for *Destiny*'s expansion *The Taken King,* opting to recast the voice of the Ghost with veteran video game talent Nolan North. North (*Uncharted, Assassin's Creed*) was not just picking up where Dinklage left off. Bungie hired the actor to re-record all of Dinklage's lines, effectively removing all traces of the Ghost's original actor from the entire game. The Ghost is the player's helper along the way, feeding the payer data while assisting with complex computing tasks during firefights. It is a major role, and Dinklage, most famous for his role of Tyrion Lannister in *Game of Thrones,* was major talent hired by Bungie for its blockbuster game. The split was amicable; Bungie cited Dinklage's unavailability because of film and television commitments.[10] The irony is that the film industry, having lost so much market share to video games, impacted Bungie's flagship series (following *Halo*), leaving Bungie scrambling to find replacement voice talent.

So how does this fit in with archaeogaming? One need not look too hard at the archaeological record to discover dozens of instances

of *damnatio memoriae* (Latin for "condemnation of memory") where emperors and pharaohs would demand that images of their predecessors be stricken from all civic art and monuments and either left in a destroyed state, or recarved with the current ruler's likeness. After the death of the Pharaoh Akhenaten (eighteenth dynasty), who introduced the monotheistic worship of the new god Aten to Egypt, his successor Horemheb, the last pharaoh of the eighteenth dynasty, destroyed all images of his predecessor. A similar instance occurred after the death of the Roman emperor Domitian: his successor Nerva famously had his portrait recut atop Domitian's in the Cancellaria Reliefs. The goal of these defamations was to purge the images and memory of past rulers from the current population's minds, as well as from history.

Fast-forward several centuries, and we have possibly the first instance of *damnatio memoriae* in video games, where the voice of arguably *the* main character in *Destiny* has been completely purged. Players new to *Destiny* will enter the game to the voice provided by North only, and many future players will be ignorant of Dinklage's prior association with the game. They will have little or no idea of who came before. For some, the history of the actual game's production will not matter all that much. But for others, this will remain a memorable event, a kind of deposing, swapping one major talent for another.

Archaeologists have been able to deduce why one ruler defaced the depictions of others, and it is possible we can do the same with media generally and games in particular. The twist with *Destiny* is that North did not decide to replace Dinklage's voice in the game. This was Bungie's decision, a corporation deciding to alter its own history in favor of producing something that they perceived as better while sweeping the past under the rug. In time, few will care about the switch, but it is noteworthy that it did happen, and it opens the door to other companies doing the same thing with other games.

Consider the game as an artifact for a moment. First, although the game is/was available on physical media, applying the expansion pack to the game on a console wipes away Dinklage's work. New purchases will have North's voice applied upon installation. For many players (myself included), the game and expansions were purchased via the Xbox or PlayStation online stores and downloaded directly to the consoles. It is as if Dinklage's voice never existed. The only proof that Dinklage contributed to *Destiny* can be found via legacy gameplay videos on YouTube or Twitch as well as on various news sites reporting on the switch of voice actors.

This then begs the question of if and/or how Bungie will archive Dinklage's version of the game, and how it will preserve his voice as

part of the history of the game and of Bungie itself. This also leads to the larger question of video game archiving and preservation, especially when dealing with media that exists only in the cloud and not burned to disk. Who is responsible if it is not the company that created it, and will current copyright law allow for a third party to archive a game even if it is not the rights holder? For the meantime, at least one enterprising soul has saved all of Dinklage's dialogue, which is currently available for free online.[11] At this writing, Bungie still has not publicly commented on any plans to archive different versions of *Destiny* or any of its other games, even after releasing *Destiny 2* in the summer of 2017.

Part of archaeology is conservation, preservation, and archiving of finds, done by professional conservators and published by the excavation's personnel as a way to preserve the data, the catalogues of finds, and the synthetic, interpretive text. As with the movie industry, there is at least one place actively archiving games: the University of Texas Video Game Archive. The problem with games as seen in past decades with film (and also on traditional archaeological sites) is the issue of making the decision of what gets preserved. No one knows how many games have been written, played, and forgotten, and it is unclear if any game archive would preserve just popular AAA titles, indie games, or all games. The Library of Congress's Preserving Creative America Initiative of the National Digital Information Infrastructure and Preservation Program has attempted to save the ephemeral with the Preserving Virtual Worlds I and II projects. Often games are preserved by passionate people, but not in any kind of standardized way, and there is always the question of copyright. As will be seen in chapter 4, there are museums dedicated to video games, which is a start, but game archiving remains in a nascent, unorganized state. On archaeological sites, the site director and team decide on what to keep and what to record and then throw away in the pottery dump. For the sites at which I have worked, we retained all "diagnostic" pottery pieces: rims, feet, handles, sherds with art or writing. The rest were weighed, counted, and noted, then discarded. Perhaps this is the model we will see with games: we will keep the best and most representative samples of games, leaving the rest to history and to collectors.

When considering preservation within actual video games (remember that there are always two levels of archaeogaming, in-game and extra-game), there will likely be (or already are) instances in synthetic worlds that could/should be protected or designated as historically significant—that is to say, perhaps an in-world/in-game version of a UNESCO World Heritage Site. Where would such a site be, and why would it be assigned that status?

It is a deceptively simple question. In meatspace, people are typically not far from some kind of landmark, roadside sign, historic home, or something that some locality (or larger governing body) has designated as being important to either preserve or mark in the earth in a permanent way. I live in the Princeton, New Jersey, area. I can throw a rock and hit a statue, marker, or milestone that dates to the 1700s. My friends in the UK can do a lot better than that. But what about in synthetic worlds?

When I was playing vanilla *World of Warcraft* in 2007 as a Tauren hunter, I encountered an early quest in Mulgore, "Kyle's Gone Missing!" The goal of the quest is to find food for a runaway dog, Kyle, and then put it out for him to lure him back to his owner, Ahab Wheathoof. I remember liking this quest, and I wondered why there was a non-*WoW* name given to the dog (names like "Kyle" violate the original terms of service and did not mesh with the role-playing server I was on). My friend who got me into the game told me that this quest was part of a Make-a-Wish Foundation request. The wish's recipient, Ezra Chatterton, visited Blizzard Entertainment, creator of *WoW,* and designed this quest as his Wish.[12] The quest is available to Horde players on every *WoW* server and serves as a permanent memorial to Chatterton. I would not have known that, however, unless someone had told me the story and I had confirmed it online. It is close to a memorial, but not quite.

I then thought about *Minecraft.* There are a number of reconstructions of the World Trade Center that were built as memorials by players in the game on their own (or shared) servers. I found dozens of different *Minecraft* memorials and reconstructions on Google Images, but these were examples of virtual spaces created to remember a meatspace event. This, too, was not quite what the question of commemoration of virtual world events is after.

Back in 2014 I had a Twitter conversation with @spacearchaeology (Steve Wilson) who told me about the historical events that happen in-game with *Eve Online.* The MMO has been around for over ten years, and the server cluster serves a single universe of players (unlike *WoW* that has groups of players on separate identical servers). The game's tenth anniversary saw a world record sixty-five thousand players logged in all at the same time to participate in in-world events. Those who did received a special ship for their hangars, a commemoration for an in-world activity that crossed between meatspace and metaspace. Related to the game is a book that is being written by Jeff Edwards, which collects player recollections of a massive in-game conflict called "The Fountain War." This book (as described by the author) sounds a bit like Thucydides or Xenophon reporting on the Peloponnesian War. While

interesting in a virtual historical sense, it still does not designate any in-game space as a virtual kind of Ground Zero.

I predict that actual, historical designation of something akin to a UNESCO World Heritage Site (or even the actual thing) will appear within the next fifty years, although it might be sooner than that based on the 2017 appointment of Cornelius Holtorf as UNESCO Chair of Heritage Futures at Sweden's Linnaeus University, recognizing in part the need to consider how to preserve current heritage for future generations to study.[13] The first UNESCO digital heritage site will likely appear within a communally shared virtual world (an MMO or whatever's coming next). But what will be the historical event that will trigger this award of status? UNESCO offers ten selection criteria, which I argue can be used in both meatspace and in metaspace:

1. to represent a masterpiece of human creative genius;
2. to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning, or landscape design;
3. to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or has disappeared;
4. to be an outstanding example of a type of building, architectural or technological ensemble, or landscape that illustrates (a) significant stage(s) in human history;
5. to be an outstanding example of a traditional human settlement, land-use, or sea-use that is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
6. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The committee considers that this criterion should preferably be used in conjunction with other criteria);
7. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
8. to be outstanding examples representing major stages of Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features;
9. to be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development

of terrestrial, freshwater, coastal, and marine ecosystems and communities of plants and animals;

10. to contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

UNESCO states that something must only meet *one* out of ten of these criteria. Think about the games created so far and which might have a space (and events occurring within) deserving of universal attention.

## Chronologies and Typologies

Archaeologists can be preoccupied with dates or, perhaps more accurately, chronologies. What came before? What came later? What did that period of transition look like? How did that transition compare with a similar one that happened elsewhere, and earlier? What can we find to help us date an archaeological site? The soil strata? A coin? An inscription? Pieces of pottery?

For establishing a chronology, it is often the pottery. Archaeologists have found countless tons of sherds from all different kinds of pots and have studied the clays used to source the raw material, the technology used to make the pot (hand- or wheel-made), the firing of the pots, their shapes, and what other objects they were found with and in what context (funerary, domestic, etc.). Over many years, archaeologists have a very good idea of how to assign at least a preliminary date to a site. That chronology established by pottery has a naming system: chronotypes.

Take a look at Greek prehistory for a moment, and more specifically the Aegean Bronze Age (about 2800 to about 1060 BCE). This age is subdivided into three parts: Early Helladic (2800–2100), Middle Helladic (2100–1550), and Late Helladic (1550–1060). Early and Late Helladic periods are further subdivided into three parts each. And then a few of these subdivisions are further subdivided so that when a scholar reads about a site from the LHIIIB2 period, that period covers a forty-year span.

So what do these pots look like? How did they change from period to period to period in the same place? Consider the amphora, a clay vessel for carrying liquid, typically wine or olive oil. Figure 1.3 is a Greek Early Helladic III (2050–2000 BCE) example from Olympia and Figure 1.4 is a Greek Late Geometric II (730–710 BCE) amphora, about thirteen hundred years later. The shapes and function are similar, but

**Figure 1.3.** Early Helladic III Late (circa 2050–2000 BCE) Greek amphora. Photo by Dan Diffendale. Used with permission.

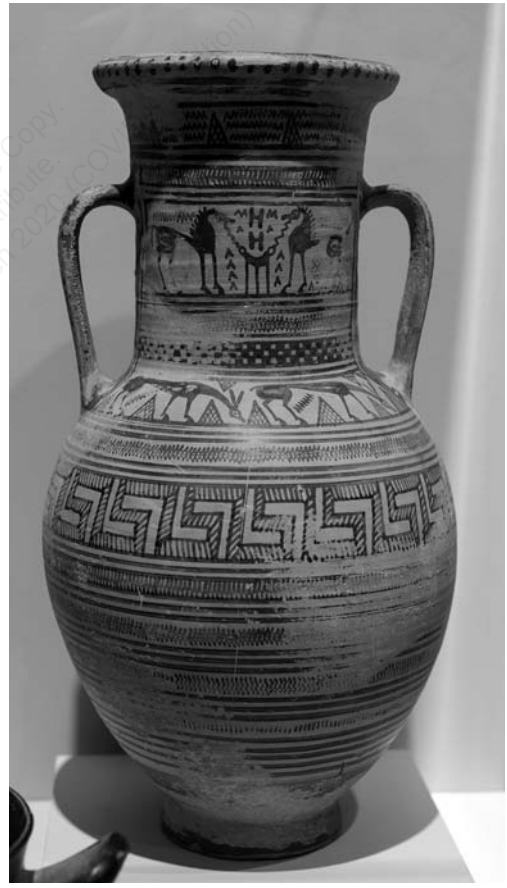

**Figure 1.4.** Late Geometric II (730–710 BCE) Greek amphora. Photo by Dan Diffendale. Used with permission.

the technology of the pot's creation has changed. The ancient Greeks were satisfied with what the amphora could do, but they continued to improve upon how that function was delivered. The clay is finer. The pot is decorated. It has a longer neck. The original functionality and design was—to borrow from the gaming community—modded.

And what then of crossing the streams of traditional archaeology and gaming? What does a simple bowl look like in *Elder Scrolls V: Skyrim*? Figure 1.5 is a example. See also Figure 1.6, a ceramic bowl from *Elder Scrolls III: Morrowind.* Both bowls are made of different materials and come from different times and places. *Skyrim*'s bowl has better texturing as could be expected from the later game. And bowls in *Skyrim*? Diversity abounds. Over a dozen bowl types exist, likely more, made of diverse materials and decorated according to the race and region in which the bowl was found.

In playing *Skyrim* (set in a northern climate in a generally medieval-like fantasy age), a sense of neatness and order pervades. Bowls are rarely out of place, carried by an NPC or other traveler from one region to the next. The same is true of *Elder Scrolls Online,* where rubbish is actively destroyed when players discard something from inventory. (See chapter 3 for more on in-game garbology.) But except for the very rare game, players in-world cannot leave materials from one place in another for others to find, which would, in effect, corrupt the in-game pottery chronology for the unwary gaming archaeologist.

We can apply the same observations to video games within the same series. We can first do this generically by title from a single company. Consider the graphics in *Final Fantasy,* first published by Square

**Figure 1.5.** Bowl, *Elder Scrolls V: Skyrim* (Bethesda Softworks). Screen capture by author.

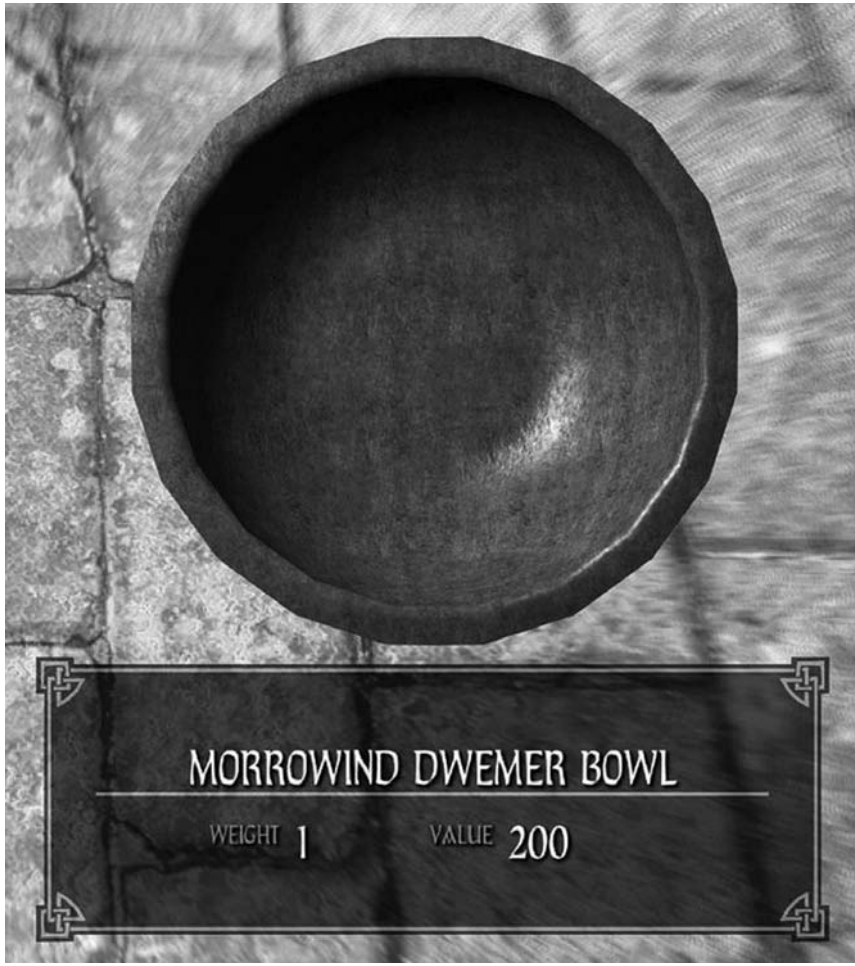


**Figure 1.6.** Bowl, *Elder Scrolls III: Morrowind* (Bethesda Softworks). Screen capture by author.

in 1987 for the NES (Figure 1.7). Compare these with the graphics in *Final Fantasy IV* four years later for the SNES (Figure 1.8) and then *Final Fantasy XV* nineteen years later (Figure 1.9). As with pots, gaming technology improves. The function (in this case to tell a story and to entertain and challenge players) remains the same, but how that functionality is delivered has changed greatly. Players can tell roughly when a game is produced, typically by its graphics. The same could be said of archaeologists considering pieces of pottery. Clunky shapes and art come earlier—most of the time. Retrogames such as *Eden* and *Minecraft* and *Undertale* are intentionally clunky and should be viewed as separate from this kind of record, almost like intrusions into gaming strata.

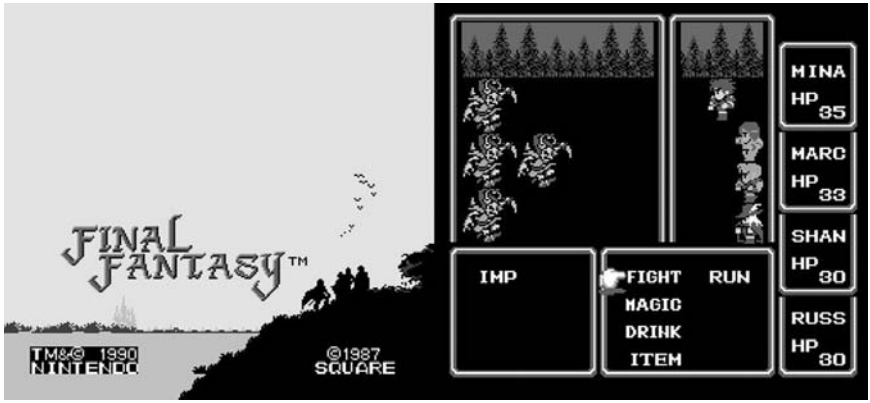


**Figure 1.7.** *Final Fantasy* for the NES,1987 (Square Enix). Screen capture by author.

But when viewing games in a series such as *Final Fantasy,* players can create a visual chronology based on how the game looks and how it plays, putting it into context.

For games in a series, developers and publishers have established their own chronologies and what to call them. While archaeologists might have LHIIIA, or Late Archaic, or Hellenistic, each qualifier representing dates of production for material made during those eras, so it goes with games. Take a look at the versioning of *Final Fantasy* on its Wikipedia page. Compare that with a chart of the Aegean Bronze Age. There are names and dates. By assigning these version numbers, gamers


**Figure 1.8.** *Final Fantasy IV* for the SNES, 1991 (Square Enix). Screen capture by author.

**Figure 1.9.** *Final Fantasy XV* for PlayStation 4, 2016 (Square Enix). Screen capture by author.

have instant recall of the art, music, gameplay, characters, and story, and they add to it the context of where (and who) they were when they played a certain iteration of the game.

Versioning is tied to time, and the gamer-as-archaeologist is in a unique position to be able to travel back to when they first played that game, comparing it with a very human context of playing that game later or with a later version of the game in a series. And for some players whose first experience with an established series might be *Final Fantasy XIII-2,* they can have that added adventure and sense of exploration by going back to the earlier games if they can find the consoles on which to play them, or they can play ports of the game on current technology (e.g., iPhone or iPad).

Going one level deeper, game-versioning further splits into build numbers. Typically a game is released commercially as version 1.0. Pre-release builds are 0.x, and expansions are 2.x, 3.x, etc., with minor patches/fixes making the version numbers creep along between full versions of the game: 1.0.0.1. Many games will display the build number upon launching on consumer hardware, and those builds help developers and players keep track of the version of the game being played. This is no different than checking if one's word processor, virus protection, or operating system is up to date. Software development is iterative, and so is the creation of digital games.

For the archaeologist, build numbers are stratigraphic markers separating layers of the game, one placed atop the next, obscuring earlier builds with later ones. This is arguably where the "real" archaeology

happens, getting beyond the somewhat academic exercise of interpreting design of game elements manipulated by avatars and seeing instead how game-space is created and how it evolves with the introduction of new code. With older games, one might only have cartridges released all at once, with no updates following. Post-internet, boxed/installed games could be updated through patches and mods downloaded from the developer or modding community, merging real media with the immateriality of new code. With current games, players can opt in to have updates applied automatically to games downloaded and installed without any physical media. The versions and build numbers increase, but they do so behind the scenes for a seamless playing experience.

To study how a single game changes over time, one then needs a control machine and a variable machine, one with the "vanilla" game as first published and the other with the patched software run on hardware specific to the game's release date. Contemporary hardware might introduce extra complexity into the game, affecting it in ways that would have been unseen by developers and players.

When viewing digital games as artifacts, chronology is supplemented by typology. Returning to the Greek pottery example, there might be a general type of vessel called an amphora, which is used for storing/pouring liquids such as wine or olive oil. Based on place of production and the shapes of the mouth, handles, body, and foot, these are further broken down into types for more exact identification, producing data related to chronology, place of manufacture, place of use, and kind of use. In Roman archaeology, Heinrich Dressel published his amphora typology in 1899, which is still used today with supplemental information added by later archaeologists who discovered additional types of amphoras unknown to him at the time. These amphoras are described as Dressel types, with a number assigned to indicate date of manufacture, shape, and use.

With video games, there needs to be a standardized typology of objects and variants. Game historians and collectors already have these in place for the items they study and collect, publishing these together online: tapes, cartridges, floppy disks, CDs, DVDs, and filetypes, spread across platforms for the same titles on various media. Is *Tomb Raider* the same game when installed from diskettes on a DOS PC as it is when downloaded from a torrent site to run through an emulator on modern hardware? The archaeological context of what version of a game is played on what hardware installed with what media adds critical layers of data for interpreting what is observed in-game, and this context must be recorded/documented as part of the archaeogaming record. The real-world site of Troy is Troy at the macroscopic level, but peeling

the layers back, going down through the stratigraphy, yields detail and information on how the site grew and changed over time as the inhabitants "modded" their own city.

In Joachim Fabian's *Time and the Other,* he defines three kinds of time: (1) physical—not subject to cultural variation; (2a) mundane—ages, stages, periods, keeping a cool distance to all times; (2b) typological—intervals between sociocultural meaningful events; (3) intersubjective—emphasis on communicative nature of human action and interaction. Time is recognized as a dimension instead of as a measure (Fabian 2002: 22–23). Time actually becomes political, even colonial, in how it creates distance between cultures (think of how many Western scholars apply BC/AD dates to cultures outside of their own). It is, as Fabian says, a "denial of coevalness," a "persistent and systematic tendency to place the referent(s) of anthropology in a time other than the present of the producer of anthropological discourse" (Fabian 2002: 31). How that relates to creating chronological typologies by definition then "consists of demonstrating synchronic relations of order beneath the flux and confusion of historical events and the expressions of personal experience" (Fabian 2002: 99). As the newer archaeology continues to expand, so does its necessity on relying on context and relationships instead of absolute time. This is applicable for both real and virtual archaeological spaces and artifacts held within. Archaeogaming is an archaeology of the recent past, and as such has multiple time-streams, some of which transcend typical, colonial/political time as applied to Old World sites. "The contemporary period cannot be fixed to a precise chronological bracket, and unusually it might be best to see this as a period defined in reverse, from the present day back to a time when the past seems (subjectively) no longer recent (e.g., 2010–1950)" (Harrison and Schofield 2010).

With a real-world archaeological site, there is no such luxury of preserving it at a single point in time, frozen. Sites, like games, continually evolve, decay, change. Chapter 3 explores the idea of games as archaeological sites, moving from the natural to the synthetic.

## A Blended Historical Reality: *Pokémon Go*

Augmented reality (AR) merges the real world with digital data that simultaneously occupies one's senses (audio, visual, or both) in real-time. It differs from virtual reality (VR) because it is not a wholly immersive, otherworldly experience. AR and archaeology already have a rich and varied history as evidenced in the work of Shawn Graham,[14] Stu Eve,[15] and Colleen Morgan,[16] among others, whose work should

be considered in detail. Archaeological and historical sites deploy AR as value-added content to the digitally enabled visitor. For those with smartphones, some sites tag areas with QR codes that can be scanned to provide interpretive details, additional images, quotes from primary sources, and more. Other sites go further by providing virtual tours, guiding the guest with GPS. Still others utilize digital overlays where guests can use their phone or tablet's screen as a way to see reconstructions or labels and explanations of the site's features. While all of these are examples of viable and successful deployments of AR in a cultural heritage context, none of them are games. Enter *Pokémon Go.*

*Pokémon Go* is an augmented reality app released in 2016 for iOS and Android smartphones. It is free to play (although in-app purchases are available), and has a small footprint of around 160 MB so it does not eat up storage. The premise of the game is simple: Pokémon (pocket monsters) are out in the real world, and your phone lets you see and nonviolently capture them, adding to your collection. There are plenty of other things to do (train, battle, level up, etc.), but the basic mechanic is a kind of hide-and-seek, merging a fantasy world with the natural one.

The game is a collaboration between the Pokémon Company and Niantic, Inc. (previously known as Niantic Labs, a Google startup ultimately spinning off in 2015). Niantic's first entry into AR games was *Ingress,* the 2012 augmented reality MMO. Niantic Labs also created *Field Trip,* a free, augmented reality travel app for use with smartphones, tablets, and at one time Google Glass.

What does this collaboration between the Pokémon Company and Niantic do for players? It merges the beloved twenty-year-old Pokémon juggernaut with a smartphone's internal GPS and then uses Niantic's landmarks and maps (also developed and used for their AR game *Ingress*) to create a rich environment of creatures and gyms, integrating them with real-world roads, waterways, greenspace, cities, and landmarks.

Archaeologists who game immediately wondered if there would be Pokémon to catch at local historical sites. When I started playing, I knew of a couple of sites that were a few minutes' walk/drive from my home; I had visited one, but not the other. Given the possibility that Pokémon might be nearby, it gave me the excuse to go touring in my own town. As it happens, I was right.

There is a marker near my home (which I had not yet visited even after living here for over five years) commemorating the route of George Washington's January march by night from Trenton to Princeton where, on the following day, January 3, 1777, he and his army would defeat the British in the Battle of Princeton. A "Pidgey" was waiting for me, and I caught it (see Figure 1.10). *Pokémon Go* goes one step beyond


**Figure 1.10.** A "Pidgey" superimposed over a historical marker in Robbinsville, New Jersey, during a *Pokémon Go* outing (Niantic Inc.) Screen capture by the author.

monster capture. Because *Pokémon Go* pulls data from Niantic, players can pause to read about places (called "PokéStops") where Pokémon sometimes hide. Players can get basic text or tap for more (including a larger image pulled from older, uncredited, user-uploaded *Ingress* photos) before dismissing the history lesson to return to the game proper.

As players wander, their in-game map displays animated symbols of other nearby landmarks/PokéStops to explore. Sometimes there is a Pokémon present, other times not. But the landmark's data remain accessible through a tap on the screen.

It is not too difficult to make the leap from walking around the neighborhood to actively chasing Pokémon around historic sites. This is where the public archaeology angle comes in: sites and organizations such as Historic Scotland host Pokémon days and activities for players where they can come to a site, look for creatures, and stay to learn more about where they are in the real world. The game is less invasive than geocaching, namely because there is no "geotrash" left onsite, and the presence of Pokémon are variable, meaning that there is no danger of ad hoc trails/desire lines being created or Tupperware or ammo boxes tucked out of sight. Even if there is no formal Pokémon day scheduled, people continue to visit sites and landmarks and will play along, learning about them via Niantic's augmented reality features. Because the app alerts players of nearby Pokémon, travelers can stop at roadside signs to learn a bit more about history that they might otherwise have passed by on the highway.

The game is not without its own ethical problems. Players must exercise tact and common sense when playing. The *Washington Post* reported a story in July 2016 on Pokémon at the Holocaust Museum.[17] The ethics of play also include staying out of restricted or sensitive areas of museums and sites, as well as private property such as residences. For these (and other) reasons, the release of *Pokémon Go* polarized archaeologists. Some embraced the game as a way to bring people to sites, while others lamented that a game would only bring people to sites to catch pocket monsters and not to engage with the site. In an email conversation with Cornelius Holtorf on August 10, 2016, I asked him what his thoughts were regarding *Pókemon Go* and cultural heritage. He admitted to not being a player or "a great phone user," but he replied:

- "Popular culture phenomena like *Pókemon Go* evidently express existing needs and desires of people and should not be dismissed in a patronizing way;

- "Public archaeology is much more than education about the past, and *Pókemon Go* should not exclusively be judged as a device of learning, or of encouraging learning;
- "*Pókemon Go* manifests a novel way in which digital natives engage with places. For an archaeologist (and potentially others), this particular engagement should be interesting in its own right and not only in the way in which it may challenge other engagements they may be more used to."

Why was *Pokémon Go* so successful? First, *Pokémon Go* is built on a brand that was twenty years old at the time of the app's release. Millions of people know what Pokémon is, and a large percentage of those have either played the card games or video games or watched the cartoons. Second, the majority of the digitally enabled population have smartphones or tablets with internet access and on-board GPS. Third, it is human nature to explore and to discover. Fourth, Niantic had already created a successful AR game, *Ingress,* and was able to build on that success, using its lessons learned to create an immersive AR experience. So what can archaeologists learn from such a successful AR deployment in order to create improved AR experiences for visitors to sites?

- Know the audience. Do many of them have technology in their pockets?
- Know the site. Do you want people to be online during their visit?
- Communicate. Let guests know that an AR app is available for download and use. Post this on the site's website as well as at points of entrance/sale.
- Engage. Give technology-enabled users other ways of interpreting the site, but do not penalize or withhold information from those guests who either do not have or choose not to use their devices.
- Brand. It would be more cost-effective and discoverable for a smaller site to partner with an AR service provider to create/distribute an AR app. Larger/famous sites might be successful with creating their own apps based on the current recognition of their brand.
- Be realistic. An app will not save your site, but it does (or should) add value to it.
- Be playful. It is human nature to explore and to discover. Whether or not the AR app becomes a game, make sure to include human stories. The narrative is the most engaging thing of all to the visiting public.

The end goal of any AR heritage project should be to actively engage the visitor with the site. Interaction is key as opposed to treating the app as a passive, one-way conduit of information. Give the viewer choices, and perhaps gamify the experience as other sites have by humanizing it. Create a suite of characters to adopt or assign. Turn the site visit into one of active discovery. Invoke the audible as well as the visual to create the environment. And keep the technology simple. Site staff are not present for technical support. Also understand that many visitors will have no desire to use the app; the site must continue to provide a positive, engaging experience without the need of technology.

One year after the release of *Pokémon Go,* the game itself remains wildly popular, surpassing 752 million downloads, and in-app purchases have topped US$1.2 billion.[18] The popularity of the game's use in the heritage sector is mixed, largely showing a downturn over the past year as the novelty wears off and other museum and site events are planned. Major museums such as the National Museum of the American Indian, the National Air and Space Museum, the National Museum of American History, and the Museum of London all held *Pokémon Go* events in the summer of 2016. The British Museum and Preservation Maryland published *Pokémon Go* guides. Smaller museums and heritage groups such as the Rock County Historical Society (Wisconsin), the Maine Historical Society, and the Fuller Craft Museum held family events and tours tied to the game that first summer as well, and a handful of small museums continue to do so in 2018 (the University Museum of Southern Illinois University at Carbondale and the Lakeshore Museum Center in Michigan).

One major *Pokémon Go* heritage event occurred on the weekend of July 22, 2017, in the historic city of Chester in England. The event partnered the city with Big Heritage and Niantic to promote the game as a way for families to discover heritage hotspots throughout a locality. Big Heritage founder Dean Paton said in the event's press release that "we are so excited about working with Niantic, Inc., who are true innovators in their field, and as passionate as we are about getting people exploring and learning about the world around them. It's a genuine coup for Chester to be the 'test bed' for some amazing new ideas, and we hope we can use the game based on the iconic and beloved Pokémon brand as a tool for helping more people get excited about the past." Hundreds of people descended on Chester for the event, but the real test is to see if the town receives return visitors who come to engage with the heritage, this time without the lure of pocket monsters.

## Conclusion

This chapter focused on the archaeology of video games in the natural world, beginning with a literal excavation of games as rubbish and ending with the blurring of natural and synthetic environments via augmented reality. For those who wish to undertake archaeological investigation, gaming spaces abound as we make an effort to interpret the Anthropocene within the past forty years. The role of the archaeologist of the recent past is often misunderstood, even within the academy: why study something if it's less than fifty years old? As will be seen in the next chapter, with archaeogaming archaeologists are developing new ways of thinking about the things we make and how we interact with them, and about how to deal with the massive amounts of things we buy, use, collect, and discard. But before we head into the field, we first need to address the tropes and stereotypes of archaeology and of archaeologists in the games with which we engage.

### Notes

1. Carly Kocurek would later write in *Coin-Operated Americans: Rebooting Boyhood at the Video Game Arcade* (2015: xxv) that "perhaps no event has so demonstrated the broad coalition at work in building gaming history as the April 2014 'Atari Dig' in New Mexico."
2. "Atari Parts are Dumped," *New York Times,* September 28, 1983, http://www.nytimes.com/1983/09/28/business/atari-parts-are-dumped.html (retrieved December 7, 2016).
3. "City to Atari: 'E.T.' Trash Go Home," *Alamogordo Daily News,* September 27, 1983.
4. http://www.ebay.com/itm/E-T-Atari-2600-From-The-Alamogordo-Landfill-Ultimate-Gaming-History-Bundle-/172846606583?hash=item283e75e8f7:g:xZUAAOSwr6RZpe-y (retrieved September 16, 2017).
5. I asked if it would be possible to return to excavate the remaining games, if only to properly dispose of them as e-waste after cataloguing the complete assemblage, but was given a very unambiguous "no."
6. See Bjørnar Olsen's excellent short book on "thing theory," *In Defense of Things: Archaeology and the Ontology of Objects* (2010).
7. A full accounting of the arcade culture of the 1970s and 1980s, as well as current retrogaming trends such as the Barcade in New York City, can be found in *Coin-Operated Americans: Rebooting Boyhood at the Video Game Arcade,* by C. A. Kocurek (2015). The earliest published work on the emerging arcade culture was 1983's *Mind at Play: The Psychology of Video Games,* by G. R. Loftus and E. F. Loftus.

8. https://www.derelictplaces.co.uk/main/industrial-sites/9072-low-hall-mill-holbeck-leeds-feb-09-a.html#.Wb2ikNOGPVo (retrieved September 16, 2017).
9. http://www.phillyvoice.com/well-known-cheesesteak-joint-closed-20-health-code-violations/ (retrieved September 16, 2017).
10. "Destiny Dropped Peter Dinklage in Part Due to Hollywood Nonsense," *Gamespot,* http://www.gamespot.com/articles/destiny-dropped-peter-dinklage-in-part-due-to-holl/1100-6429664/ (retrieved December 7, 2016).
11. https://www.reddit.com/r/DestinyTheGame/comments/3k2e2p/complete_clean_peter_dinklage_ghost_dialogue/ (retrieved December 7, 2016).
12. "Blizzard Makes WoW Wish Virtual Reality," http://www.ocregister.com/news/chatterton-191512-game-blizzard.html (retrieved December 7, 2016).
13. https://lnu.se/en/meet-linnaeus-university/current/news/2017/linnaeus-university-gets-the-worlds-first-unesco-chair-in-heritage-futures/ (retrieved September 18, 2017).
14. See Shawn Graham (2015), "Low-Friction Augmented Reality," https://electricarchaeology.ca/2015/05/20/low-friction-augmented-reality/ (retrieved December 10, 2016).
15. See Stuart Eve (2014), "Augmenting Phenomenology: Using Augmented Reality to Aid Archaeological Phenomenology in the Landscape," *Journal of Archaeological Method and Theory* 19(4): 582–600.
16. See Colleen Morgan (2009), "(Re)Building Çatalhöyük: Changing Virtual Reality in Archaeology," *Archaeologies: Journal of the World Archaeological Congress,* DOI 10.1007/s11759-009-9113-0.
17. A. Peterson, "Holocaust Museum to Visitors: Please Stop Catching Pokémon Here," *Washington Post,* July 12, 2016. https://www.washingtonpost.com/amphtml/newa/the-switch/wp/2016/07/12/holocaust-museum-to-visitors-please-stop-catching-pokemon-here/ (retrieved February 15, 2018).
18. https://www.gamespot.com/articles/pokemon-go-passes-12-billion-in-revenue-report/1100-6451454/ (retrieved September 18, 2017).

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