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# Collecting, Preserving, and Interpreting the History of Electronic Games

## An Interview with Jon-Paul C. Dyson

Jon-Paul C. Dyson is vice president for exhibits and director of the International Center for the History of Electronic Games (ICHEG) at The Strong. Trained as a cultural and intellectual historian, he joined The Strong in 1998 and has worked on and supervised the development of dozens of exhibits on play and video games. He initiated the museum's efforts to collect, preserve, and interpret video games in 2006, and today The Strong's collections are the most comprehensive in the world. He writes frequently on video games and play for both scholarly and general audiences. This interview explores how The Strong has developed its video game collections, what some of the pressing issues are in preserving those materials, and some possible directions that video game scholarship will take in the coming years. **Key words:** collecting electronic games; electronic game history; electronic game preservation; International Center for the History of Electronic Games (ICHEG); video games

**American Journal of Play:** Let's start with your personal experiences. Did you play video games growing up?

**Jon-Paul Dyson:** Definitely. I was among the first generation of kids to have real access to video games. I remember playing a version of *Pong* in the 1970s and then some arcade games like *Space Invaders*, *Pac-Man*, and my all-time favorite *Galaga*. But for me, my world opened up when I got access to computers at school and at home in the early 1980s. My first exposure to computer games came when my older brother brought home printed sheets of papers from a teletype printer. For those too young to remember, a teletype printer was a device you used to interact with the computer by inputting commands and reading responses on large spools of paper—it

was essentially a giant, interactive typewriter. You typed your commands onto these large spools of paper, and the computer would print out its responses.

My brother had been playing *Zork*, a text-based adventure game in which players explored a magical world by reading descriptions of rooms and entering short written commands like “get sword” or “climb tree.” He would bring home printouts of his adventure, and I would give unsolicited advice about what he should do next. I’m sure he ignored my advice, but the experience allowed me to play vicariously, to participate in computer play.

**AJP:** Did you have an opportunity to play with computers more directly?

**Dyson:** Yes. In middle school, I gained access to computers and learned to program games. My parents then bought an Osborne computer for our home (it was billed as a “portable” computer, but it was the size of a small suitcase). It allowed me to play and program more games, and when my parents purchased an Apple IIe, I gained access to hundreds more games. I was hooked, and I have been playing ever since.

**AJP:** So how did you move from playing video games to collecting them and studying them?

**Dyson:** Well, for one thing, I never stopped playing them. I also enjoyed creating them and went to college to be a computer science major. However, along the way, I switched to history and got a PhD in American History with an emphasis on intellectual and cultural history and the history of science. In 1998 I began working at The Strong. In 2003 the museum shifted its mission to explore the history and impact of play (for a good overview of this see the interview with G. Rollie Adams in the Winter 2013 issue of the *American Journal of Play*).

As the museum considered how best to collect, preserve, and interpret the history of play, the staff realized that, although video games were transforming the way people play, learn, and relate to each other, the museum’s collections were woefully inadequate when it came to video games. The Strong had an amazing collection of traditional playthings like dolls, toys, and games, but the museum had only a few dozen examples of electronic games. So, we launched an effort to collect, preserve, and interpret electronic games to help us understand video games within a broad context that includes the experiences of players, the work of game creators, and the wide contours of play itself.

**AJP:** So, video games fit within the Strong's new mission, right?

**Dyson:** Yes. The Strong's mission is to preserve and explore the cultural history of play and its impact on society. It is impossible to divorce the history of video games from the broader history of play (and vice versa), so collecting video games is a logical extension of everything that The Strong does to serve its mission. In this way, the museum's approach differs from that which might be taken by an art museum or a computer history museum that would look at video games through a different lens.

**AJP:** Can you explain that—how this approach might influence the way the museum collects and interprets video games?

**Dyson:** Video games emerged, and continue to emerge, from older forms of play. Think about almost any type of video game, and you'll find an analog antecedent that helps us understand that type of play. Consider the earliest computer games. They generally were re-creations of older games and sports or variations on them. For example, computer pioneers in the 1950s created simulations of classic games like tic-tac-toe, checkers, and chess to figure out how to program computers effectively. Similarly, many early video games like William Higinbotham's *Tennis for Two* (1958), and Ralph Baer's pioneering "Brown Box" tennis game (1968) that became the basis of the Magnavox Odyssey, and *Pong* (1972) were all based on racket and ball games. Even *Spacewar!* (1962), often cited as the first video game, reflected popular shooting games as well as a widespread cultural interest in space and science fiction during the mid-twentieth century space race between the United States and the Soviet Union.

Since then, electronic game designers have continually drawn inspiration from various forms of play. For example, the game designer Will Wright (whose papers The Strong has in its collections) has compared his games *SimCity* and *The Sims* to model-train building and dollhouse play, respectively. One of the most popular scenarios for team-based, multiplayer shooter games such as *Team Fortress 2* and *Overwatch* is basically "capture the flag," a digital version of an old backyard favorite. Racing, fighting, and sports games all simulate real-life activities, and fantasy role-playing games almost always descend in direct lineage from the pen-and-paper game *Dungeons and Dragons*.

Pioneering video game companies often got their start in older forms of play. Nintendo began 125 years ago making *hanafuda* playing cards. Many early console makers, such as Mattel and Coleco, were in the toy

and sporting-goods businesses before they began producing video games. Numerous game designers launched their careers making board games or role-playing games and still find inspiration from those analog games today. Thus, from a conceptual, institutional, and individual point of view, the history of electronic games is inextricably linked to the broader history of play.

**AJP:** How quickly did The Strong's collection of video games grow?

**Dyson:** When The Strong began collecting video games in 2006, its collection was woefully small, consisting of no more than 100 items (things like an Atari 2600, some cartridges, and a handful of computer games). After tackling the broad interpretive approaches to video games, we began to build our collection, and we soon increased its size to more than ten thousand video games. At that point, we believed the effort needed an institutional identity, and we established the National Center for the History of Electronic Games at The Strong in 2009.

**AJP:** The Strong has added the word "international" to its title. Why is that?

**Dyson:** When we launched our video game center, we chose a name that matched The Strong's National Museum of Play and National Toy Hall of Fame, but we realized there was no way to preserve and document the history of video games in a purely domestic context. The history of electronic games has always been one in which games, ideas, producers, and players have crossed borders, so the only way to tell the history is to take an international perspective. Within a year, we changed the name to the International Center for the History of Electronic Games (ICHEG) to reflect that reality. When we launched the World Video Game Hall of Fame in 2015, we redoubled the emphasis on the international nature of video games.

**AJP:** Tell us about the World Video Game Hall of Fame.

**Dyson:** The World Video Game Hall of Fame honors games that meet four criteria: they have icon status, longevity, and geographical reach, and they have influenced other games and culture. Based on these criteria, we select a list of finalists that are then voted on by our International Selection Advisory Committee made up of academics and scholars from around the world. We established the hall of fame in 2015, and since then sixteen games have been selected. They include: *Donkey Kong*, *DOOM*, *Grand Theft Auto III*, *Halo: Combat Evolved*, *The Legend of Zelda*, *The Oregon Trail*, *Pac-Man*, *Pokémon Red and Green*, *Pong*, *The Sims*, *Sonic the Hedgehog*, *Space Invaders*, *Street Fighter II*, *Super Mario Bros.*, *Tetris*, and *World of Warcraft*. We feature them

in exhibits and continue to collect around them.

**AJP:** Do you continue to collect actively?

**Dyson:** Rapidly. Every year we add thousands of artifacts, and today the collection consists of more than sixty thousand video games and related artifacts, as well as hundreds of thousands of archival documents. They range from individual games for consoles, computer, and mobile devices to more than three hundred arcade and pinball machines. Some games are famous, some are obscure, but combined they provide a rich repository of the history of electronic games.

**AJP:** How do you determine what to collect?

**Dyson:** We definitely did some serious thinking about what was most important to collect when we launched the initiative. Personally, my thinking was shaped by comparable scholarly fields I had studied. In the history of the book, for example, scholars had moved from a focus on the basic text (such as a book like *The Adventures of Huckleberry Finn*) to a broader perspective that looked at how authors wrote their works; how publishers created, marketed, and sold them; and how readers responded to them. I articulated some of these thoughts into a document that we called “Concentric Circles: A Lens for Exploring the History of Electronic Games,” in which we committed to collecting materials that documented the games themselves, the experiences of the players, the work of the people who made the game, and materials that showed how video games related to the broader universe of play, past and present. We continue to collect in ways that document the full breadth and scope of the industry and its impact on people’s lives.

**AJP:** Can you give an example of how this collecting might manifest itself in practice?

**Dyson:** Consider a game like *Asteroids*. Atari created it in the wake of the success of *Space Invaders*, which came out in 1978 and sparked a mania for arcade games in Japan, North America, and Europe. *Asteroids*, in which players try to destroy oncoming asteroids, became Atari’s best-selling arcade game of all time after its release in 1979. In The Strong’s collection, a wide range of materials document its history and its impact on players. To begin with, the museum owns a copy of the original arcade game (which guests at the museum can play) and dozens of copies of versions that were ported for home systems. Materials in the museum’s Brian Sutton-Smith Library and Archives of Play document how Atari engineers created *Asteroids*, from the schematics for the cabinets to designer Ed Logg’s design notes and

even his hand-drawn sketches for the spaceships in the game. The prototype version of the cabinet, signed by Logg, is on display in the museum's *eGameRevolution* exhibit.

The museum has also collected many materials that show how players experienced the game. These include market research reports and focus group notes Atari employees took while testing the game. But it also encompasses popular media accounts of the games and players' experiences with it and even academic studies of it and other games of its era, such as Geoffrey and Elizabeth Loftus's *Mind at Play* (1983), which explored the video game boom and arcade subculture of the era.

**AJP:** How did The Strong acquire these and other materials?

**Dyson:** Collections come from a variety of sources. Most important in growing the collection has been the cultivation of relationships with four groups of people: industry veterans, collectors, players, and scholars. All of these groups have helped us build the collection. Prominent members of the video game industry such as Ken and Roberta Williams (founders of Sierra), Will Wright (creator of *SimCity* and *The Sims*), Carol Shaw (pioneering programmer and game designer at Atari and Activision), and Doug Carlston (founder of Brøderbund) have donated their personal and corporate records and often copies of the games they or their companies worked on as well. Ralph Baer, who developed the first home video game system and the popular handheld game Simon, donated many of his personal papers when we were first launching our efforts. These materials provide a crucial record of how video games and the video game industry developed over time.

At times materials become available to us from collectors who have a nose for finding rare items and building comprehensive collections from particular manufacturers or for certain systems. Everyday players are key supporters of our efforts, as they donate games that they owned and played. And researchers into the history of video games have become crucial allies in building our collections. We originally gathered many of the materials in our collections to support the work of people studying video games, and what we have found is that now many of these individuals are donating materials themselves or connecting us with people they meet in the course of their research. A virtuous cycle takes hold, in which we collect materials, researchers come to use those resources, and they in turn point us to more items that will be of use to future scholars.

**AJP:** Can anyone access these collections?

**Dyson:** The Strong uses these historical materials for a number of purposes. First of all, the museum features artifacts in long-term and short-term exhibits and displays that are viewed by more than 550,000 guests a year. We opened our *eGameRevolution* exhibit in 2010 and *Pinball Playfields* in 2016. Both exhibits are permanent, though they get upgraded and improved over time. We also have installed numerous temporary exhibits including *Playing with Power: Celebrating 30 Years of the Nintendo Entertainment System*; *Atari by Design*; *Racers: The Thrill of Driving Games*; and *The Oregon Trail, MECC, and the Rise of Computer Learning*. We also regularly feature smaller exhibitions of donated collections, ranging from Ralph Baer's desk from his Florida home to groupings of items donated by individuals such as Paul Sams of Blizzard, the previously mentioned Ken and Roberta Williams of Sierra, and Doug Carlston of Brøderbund.

**AJP:** Can people see any of these collections items online?

**Dyson:** Yes. In addition to physical exhibits, much interpretive content is available online. Sometimes this revolves around information for specific objects, such as on The Strong's online collections page, but also it involves discrete interpretive experience such as our video game history timeline, which provides a year-by-year highlight of key moments in video game history, or our *Pinball in America* exhibit. We also loan out many items to other museums. All materials are made available to researchers and scholars who are exploring how the history of electronic games has changed over time.

**AJP:** Has there been a lot of scholarly interest in these materials?

**Dyson:** Yes, and it's growing rapidly. When we first launched our efforts, game development, game studies, and game history programs were in their infancy. Now hundreds of universities have such programs, and university presses are pouring out books on the subject. Having access to archives of primary sources is key for the development of any historical field, and so we're pleased that scholars from all over the world are now coming to The Strong to do research. To encourage such research, The Strong started fellowships that support scholars who travel to Rochester and do research in the museum's collections. Subjects supported by the fellowship have ranged from book projects on the careers of important game designers like Shigeru Miyamoto, Jane Jensen, and Roberta Williams to investigations into the role of women in the game industry and the rise and fall of key companies like Atari. By looking at primary documents, scholars uncover new insights into the development of video game history and its impact on people's lives.

*AJP:* Would it be more effective just to digitize it all and make it available online?

**Dyson:** The Strong does take photographs of every three-dimensional artifact and makes those available online. The museum also has begun digitizing some items, but the first step is often to bring items into the collection, stabilize them, and then process them so that there is a clear record of what items there are. This is often a vast undertaking. For example, when The Strong acquired the Atari Coin-Op Divisions Collection, it filled an entire tractor-trailer truck, and many of the items were stored in moldering boxes or water-damaged folders. The first act was one of triage to stabilize the materials. Then conservators and archivists worked for more than a year to transfer the items to storage containers that could preserve them for the long term and create a finding aid for the items to guide researchers. Eventually, digitized versions of many of these materials will be produced, but it's necessary to do this preliminary work first. The museum recognizes the desirability of digitizing materials and making them available online and will do that as rapidly as resources allow.

*AJP:* Is it more difficult to preserve old video games than other types of artifacts in The Strong's collection?

**Dyson:** In short, yes. Museums have gotten very good at preserving traditional artifacts made out of paper, metal, plastic, or other materials used to produce nondigital items. For example, The Strong has the world's finest collection of board games, and as long as these games are stored in collections areas at the proper temperature and humidity and away from harmful light, their long-term preservation can be maintained. Yet video games are fundamentally different because the information they contain, and the means of playing them, are not printed on the surface but stored on some sort of magnetic, optical, or electronic medium that needs to be accessed to make the game work. Storing and accessing video games thus presents a number of long-term preservation challenges.

First, video games often rely on delicate, obsolete hardware to access the game. For example, a game programmed on an old Apple II computer relies on a computer system, disk drive, monitor, and other components that are four decades old. If you wanted to play an Apple II game on its original system, all of these components would need to work. Sometimes we are able to use original equipment, and sometimes we need to rely on emulators.

Second, the software that runs the game is often stored on media that

are inherently prone to decay, such as 5 ¼-inch floppy disks that store information magnetically or CD-ROMs that store information optically. Unlike traditional materials that often last for centuries, software storage devices usually have lifespans that are measured in years or decades. And even if the information is intact, the operating systems, codecs, and other pieces of software necessary to run programs of the type the game uses may be compromised and nonfunctional. Today, because more and more games exist only in digital forms stored either locally or in the cloud and rely on active servers to run the games, the challenges of digital preservation have only grown more complex.

Third, even when the game is preserved, the context in which it was played and experienced is often lost. That could involve the way people interacted around and through the game. How, for example, did people in arcades play, speak, socialize, flirt, and compete with each other? Or with modern MMOs (Massively Multiplayer Online games) such as *World of Warcraft*, how do millions of players playing simultaneously build virtual communities? And what happens when games like these are shut down and the communities disbanded? Even if we re-created these games at a functional level, we would have a distorted sense of what the game was like absent the living community of individuals playing it. It would be like going to an empty Yankee Stadium—one might be struck by the scale of the place, but it would require an act of the imagination to re-create the sights, sounds, and smell of a sold-out game in the midst of a pennant race.

**AJP:** Sounds challenging. So, what is ICHEG doing to address this?

**Dyson:** There's no one-size-fits-all approach to solving these challenges. In general, The Strong has taken a fivefold strategy for tackling these issues. First, we collect copies of the hardware and the software on which the games were originally released. That ensures that researchers can play the games on the original formats. Even the best emulators don't necessarily re-create the full experience. For example, when players used to play old role-playing games, they'd often anticipate what was going to happen based on the speed of the computer's response. If they opened a door in a dungeon and the disk drive began spinning and the computer took a few seconds to load, then they knew they were encountering a monster and not an empty room. Furthermore, even as these games have digital DNA, they also have a physical existence, what the scholar Ray Guins calls their "materiality." A game played on a Commodore-64 had not only its own pacing but also came

with a particular package, accompanied by printed instructions, and was accessed through a keyboard layout that differed from today's keyboards. All these factors make playing the game on the original different from playing it on an emulated version. The original materials also have great usefulness for display purposes in exhibits.

In addition to the physical copies of games, we also collect published materials about the games, the game industry, and players. The Strong currently holds more than twenty thousand video game and computer magazines, as well as books, video documentaries, and other primary-source materials that provide useful context for understanding how games were made and received and what issues the video game industry as a whole was facing. These provide crucial information about the social and cultural contexts of games at the time of their release and use.

Third, the museum collects archival materials from key individuals and companies in the games industry. Materials from game design pioneers like Ralph Baer, Will Wright, Roberta and Ken Williams, Jordan Mechner, Jerry Lawson, Scott Adams, Carol Shaw, and others provide invaluable insights into how games were created and produced. Company executives like Doug Carlston, founder of Brøderbund, and Brian Fargo, founder of Interplay, have provided us with unique materials that show how individual companies not only developed their businesses but also how they navigated the ever-changing video game industry. And, as I have mentioned, our Atari Coin-Op Divisions Collection provides particularly rich insights into the industry. This massive archive is of inestimable value for anyone studying the history of video games. These archival collections are probably the key materials accessed by scholars.

Fourth, the museum captures videos of game play, often using original equipment. This not only records how the game played when it came out, but proves especially useful when we try to preserve the play of games such as MMOs that rely on communities of players and servers operated by the company to keep the game going.

Fifth, the museum preserves source code (the programming that makes the game work), migrates files from old media to new media that can be better preserved, and works with emulation to ensure the games can be played on modern computers. Given the rapid changes in computer technology and the relatively short life-span of most computer storage media, it is imperative that the museum preserves the materials in its care through

these means when possible.

**AJP:** You're covering a lot of ground, but as games change, do the challenges shift too?

**Dyson:** Certainly. The biggest change has been the rise of digitally distributed content. Today, the majority of content is digitally distributed, not stored on media like tape, disk, or CD-ROM. People download games directly onto their phones, computers, or consoles. Often these programs rely on servers controlled by the game publisher or distributor to run them, and if the company takes that server down, the game becomes unplayable. Games are much more fluid these days as well, with updates, patches, and expansions. For an old system like the Atari 2600, users might have bought a cartridge that never changed, but now the museum needs to think about which version of a digitally distributed game it is preserving—the original release or a later, updated version. Indeed, in many cases the updates to the game may be automatic, so unless the museum intentionally prevents the game from being updated it would be automatically upgraded.

**AJP:** So how is ICHEG meeting these new challenges?

**Dyson:** To aid our efforts to preserve these digital materials, we have staff who tackle different aspects of this work. Our director of conservation has to deal not only with digital preservation but also traditional physical conservation of paper, wood, plastic, metal, and other material parts of electronic games. Our arcade conservation technician takes care of the day-to-day maintenance of our more than three hundred arcade and pinball games, including ensuring that many of these are functional for guests of the museum to play. Our digital games curator is charged with finding solutions to many of these problems of preserving digital materials. Perhaps his biggest challenge is that because we look to preserve materials for fifty, one hundred, even five hundred years we need to refresh our techniques, tools, and approaches constantly.

Preservation of video games, as with preservation of all historic or cultural materials, is ultimately about making choices. Conservation is never about stopping change but about slowing its effect and ensuring that materials are preserved for as long as possible. In some ways, it's a Sisyphean task, but it's one we feel is necessary to preserve this crucial segment of cultural history.

**AJP:** Who are the audiences The Strong tries to reach?

**Dyson:** I believe "communities" is actually a better word than "audiences." And

there are many communities. Some are online, people who are passionate about video games and their history. For this community, The Strong provides online exhibits on the history of video games and pinball, blogs, social media posts, and online collection entries. But we also learn from them, too, which is why I think the word community is better than audience. People who are passionate about video games are a great source of information about games and their impact on individuals' lives.

The scholarly community, primarily but not exclusively from universities and colleges around the world, is another important community we serve. Scholars ask the big questions, and by staying in dialogue with them, we gain insights into what questions are important, how we should explore these, and what we need to collect and preserve to do so.

And perhaps our most tangible community is composed of the more than 550,000 guests who come to the museum annually. People can get lots of information about video games online, but they still love the immediacy and tangibility of playing an old arcade game like *Pac-Man* or the world's biggest pinball machine, Hercules; seeing a console or computer they might have had in their youth; or learning how game designers like Will Wright or Roberta Williams came up with their ideas. The Strong gives people the opportunity to experience these things through several permanent exhibits. But more than just giving people the chance to play classic games and see how they were made, we also explore why video games are so important and how they relate to culture and our understanding of individuals.

**AJP:** Can guests play any game in the museum?

**Dyson:** Unfortunately, no. We make some games available to the general public, generally arcade and pinball cabinets that are not in our restricted collection, but most games are too fragile or would take too long to explain or play to make them suitable for a museum exhibit. We try to make these games available to researchers, however, while offering information about them, their history, and their importance to the general public.

**AJP:** Restricted collection? Weren't these machines made to be played?

**Dyson:** Yes. And many of our games are available for guests to play; what we call "use-ifacts," or artifacts that our guests can interact and play with. But these games weren't necessarily made to be played twenty, thirty, or forty years after their initial release. We have to balance long-term preservation with accessibility for guests and researchers. With that in mind, we drew on conservation models and principles from historic (architectural) pres-

ervation and from libraries.

Architectural preservation, like game preservation, is always about making choices. For example, when Ann Pamela Cunningham founded the Mount Vernon Ladies' Association in 1853, George Washington's home was in disrepair. These pioneering preservationists had to make difficult choices about what could and could not be saved. Should the house look exactly like it did when Washington lived there? What compromises have to be made when original documentation, artifacts, furniture, and other materials no longer exist? We face similar questions with regard to our collection of arcade and pinball games. For example, if the bezel artwork (the artwork surrounding the video monitor) of an arcade game has been exposed to moisture and has badly deteriorated, our conservator may remove, stabilize, and create a reproduction of the artwork that can be added to the machine. The original artwork would be saved and archived separately to preserve this important part of the game.

Similarly, we have drawn on access and preservation models developed by libraries to categorize our collection of arcade and pinball games. Many libraries have books that circulate in their general collections and books that remain accessible only to researchers in their special collections. We have developed a similar model to provide our guests with access to coin-operated games in our general collection while allowing various levels of access to games in our special collections. Few games are restricted from use, but some rare, fragile, or one-of-a-kind games like our *Asteroids* prototype, must be treated differently. Through this categorization, we have developed policies that help us preserve examples of these games while making many of them accessible to our guests and researchers.

**AJP:** So why are video games important?

**Dyson:** At the most basic level, video games are important because of their sheer popularity and influence on consumers. Today, the video game industry has an economic impact of more than one hundred billion dollars worldwide. If you look at statistics from the Entertainment Software Association, you will also see that average gamers are now in their thirties. Basically, once people start playing video games there is a good chance they will keep doing so. And yet beyond economic power and mass consumption, video games are emerging as an important contributor to the arts and social commentary. As people who grew up with games come into adulthood, they attempt to use the medium for deeper expression. Sometimes they do this in a game for a mass audience like *Journey* that attempts to explore

how people can have a shared experience through games. Other times they express themselves through games that explore deep human experiences like *That Dragon, Cancer*, which offered a way for the programmer and designer to work through the issues surrounding the illness and death of his young son.

Video games are a tremendous learning engine. They invite us to explore new worlds, teach us how to strategize, build social relations, and sharpen our synapses every time we play. And they are being used to educate, train, and treat people in a variety of contexts (see the article “Video Games: Play That Can Do Serious Good” by Adam Echenbaum and others in the Fall 2014 issue of the *American Journal of Play*). I believe firmly that video games are the most important medium of the twenty-first century, just as the novel was of the nineteenth century and film and television of the twentieth century. The rise of pervasive and cheap computing has put a wonderful tool in the hands of people like never before, and video games are the natural offspring of the marriage of that new technology with the universal human instinct to play.

**AJP:** How do you respond to critics who see video games simply as a waste of time—or even harmful?

**Dyson:** I would approach it historically. Every time a new form of media has become popular, it has been greeted with suspicion, hostility, and fear. For example, when the novel became popular at the end of the eighteenth century and beginning of the nineteenth century, people worried that it would corrupt young people. The same was true of concerns over dime novels in the late nineteenth century, comic books and rock 'n' roll after World War II, and fears of movies and television throughout the twentieth century. I believe much of the psychological and sociological commentary on video games has been biased by the fact that they are a new medium. Patrick M. Markey and Christopher J. Ferguson's piece on the violent video game moral panic in this issue provides a useful overview of this phenomenon.

This does not mean that I think there are no problems with video games or that we do not need to think critically about the games or the people in our lives play, or how much time we should spend playing them. I am a parent, and I know I constantly think about this with my children. But we do need to recognize that our discussions of this dramatic new form of play need to be understood within a broad historical context that reflects on how this social and cultural transformation relates to other aspects of

human historical experience.

**AJP:** So, you think we should not be worried about violence in video games?

**Dyson:** These are complicated issues, and again I believe these are best understood historically and from an understanding of play even as we think of their real-life implications. In terms of violence, do I personally find some violence in video games disturbing or inappropriate? Yes. There are some games I do not enjoy playing. But I am also not a fan of horror movies or horror novelists like Stephen King. And many people are. What I think critics of violence miss is that players are extremely good at differentiating between what is fantasy and what is real. When players are in the play state, the magic circle (to use Johan Huizinga's phrase), they are in a different mental place than when they are in real life. Although there have been some psychological studies that show short-term increases in aggression in very controlled lab settings after playing video games (or watching violent movies), other studies have attributed such feelings to frustration with the game itself. And there has never, as far as I know, been any study that shows any lasting increases in aggression, let alone actual real-world violence, from playing violent video games. Indeed, there has been a dramatic society-wide decrease in violence that corresponds with the rise of video games since the 1980s. Now I am not foolish enough to conflate correlation with causation, but on the other side I have seen no compelling evidence that there is any link between pretend violence and real-life violence.

Taking a historical perspective also offers useful insights. In our collections at The Strong, we have materials from the 1970s and 1980s that document the fears of activists that video games promote violence and other antisocial behaviors. The game *Death Race*, for example, was an arcade game in which players were running over stick figures that were known as gremlins. Critics claimed the game promoted violence. And yet when you go back and play the game—we have it in our collection—that claim seems laughable in retrospect. Taking the long view places these concerns in context.

**AJP:** What about the treatment of women in games?

**Dyson:** Here I think we need to think broadly about three major issues. First, how do games portray women and girls? Second, what are the conversations that are happening around games, both online and offline, about women and girls? Third, what is the experience of women working in the game industry?

In terms of games' portrayal of female characters, I think in many ways this reflects general cultural depictions (some of them quite negative) of girls and women. Games are part of culture, so it's not surprising if they emphasize certain things. As far as I know, there is no conclusive evidence one way or the other of the long-term impact of video games on attitudes towards women. For example, Johan Breuer and Rachel Kowert in a 2015 study found no link between playing video games and sexist attitudes over a three-year study. They were quick, however, to stress that this did not prove there was no linkage.

What seems to me more clearly an issue exists in the dialogues and conversations around games, especially online. Controversies like #gamergate highlight an often high level of misogyny in some aspects of the gaming world. I suspect that this represents not only a reflection of general societal attitudes but is also an artifact of the technological structure of the internet, which can encourage such conversations by removing the face-to-face element, allowing anonymity, and rewarding, with attention, particularly outrageous statements and behavior. This has had an effect as well on the experiences of women in the games industry, experiences that clearly reflect the broader tech industry. The experiences of women and girls in games is an extremely important subject, which is why we launched in spring 2016 our Women in Games initiative to document the history of the experiences of women and girls in relation to video games.

**AJP:** Tell me more about the Women in Games initiative.

**Dyson:** We started it because we realized that the story of women's contributions to video game history was underpreserved, undertold, and, therefore, underappreciated. Women have long played central roles in the development of both computers and games. Women were pioneers in game development. Long before computers were around, female game designers produced some of the most influential and important games of all time, including *Authors* and *Dr. Busby*, two of the best-selling games of the nineteenth century. Elizabeth Magie created *The Landlord's Game*, which inspired *Monopoly*, and Eleanor Abbott invented *Candy Land* to entertain children with polio. Women have long played important roles in the games industry, from Ruth Handler, cofounder of Mattel, to Felicia Parker, who led I-S Unlimited, Inc., the major agency representing game designers in the 1950s, 1960s, and 1970s, and whose clients included Sid Sackson, the foremost American board game designer of the twentieth century.

Women have also been key contributors to the development of computer technology. Ada Lovelace became the first computer programmer through her work with Charles Babbage on his Analytical Engine in the nineteenth century. Admiral Grace Hopper created the first computer language compiler in the twentieth century. If you saw the movie *Hidden Figures* you will recognize that women and men worked to develop, program, and operate the computers that transformed society.

Not surprisingly then, women have contributed greatly to the development of electronic games. I have mentioned Roberta Williams's contributions already. Dona Bailey and Carol Shaw trailblazed at Atari, the leader of video gaming in the 1970s. Brenda Romero worked on the Wizardry series of games that dominated the early role-playing genre. Brenda Laurel of Purple Moon and Megan Gaiser of Her Interactive led the development of games explicitly marketed to girls (though plenty of boys liked them too).

Women have exercised particular influence over the development of educational computer games, from Mabel Addis's work on the 1965 Sumerian Game (possibly the first use of a computer game in a classroom setting) to that of Ann McCormick (Piestrup), founder of The Learning Company, whose games (such as *Rocky's Boots*) launched another important sector of the industry. Since then, thousands of women have served in design, marketing, executive, manufacturing, and journalism roles in game companies, media outlets, and industry-wide organizations such as the Entertainment Software Rating Board. We are trying to collect materials that document these contributions (like the papers of Carol Shaw and Roberta Williams). As always, we make these available to researchers, and we will feature them in an exhibit on the role of Women in Games that we plan to open in November 2018.

**AJP:** So, how does this relate to the idea of the New Video Game History, which is the theme of this issue?

**Dyson:** I think the history of women in games is a good example of the sort of topic that historians are exploring with increasing interest. In general, I think the New Video Game History is a useful term for the congeries of new subjects, approaches, and sources that are changing how we perceive the history of video games.

The term New Video Game History reflects a couple of trends in the larger field of history. Traditionally, history for much of the nineteenth and twentieth centuries had been dominated by an emphasis on the role of elites

in politics, the military, business, and religion. This was dictated by the interest of the historians but also because the writing of these elites—largely white, male, and rich—was much more accessible than other sources. Starting in the late twentieth century, however, historians began to pay more attention to the everyday lives of common people. Scholars mined new sources—things like census rolls, probate records, and church membership lists—and employed the tools of social scientists to create a fuller record of the everyday life of Americans. This history from the bottom up became known as the New Social History in the 1960s and 1970s. That was followed by the New Cultural History in the 1980s and 1990s that sought to chart the changes and evolutions of popular culture and the way these changes affected society. Historians explored the impact of the rise of public amusement spaces like dance halls and amusement parks on society and charted the meaning that ordinary people made from new mass amusements like radio and film. These perspectives broadened our understanding of American history.

Similarly, video game history is going through a transformation. The first generation of video game scholars were often journalists or passionate hobbyists who drew on their own experiences in the field and their conversations with game designers and senior executives to tell a story of the industry focused on some of its most prominent businesses. These histories are extremely valuable but often only told part of the story or relied on individual memories that were sometimes faulty. Now historians are telling new narratives that broaden the overall story, in part by drawing on new sources. That is where we come in. As we preserve extensive corporate and individual records, we make available materials that allow a fuller picture of the history of game design to be written—for example Carly Kocurek's piece in this issue, which uses such research to show how we can broaden the story of who has contributed to the creation of games.

**AJP:** What challenges do you think historians are facing as this field develops?

**Dyson:** I think the most pressing problem for scholars is gaining access to the wealth of historical documentation that enables them to ask new questions, explore new topics, and develop new interpretations about how video games have developed and changed over time. That is what drives our work at The Strong, to ensure that we preserve a record of these materials so that future historians will be able to do their work. As I said, we believe that video games are the most important medium of the twenty-first century,

and therefore it is imperative that we work to preserve their history.

**AJP:** What special assets does The Strong have that enables it to do this work?

**Dyson:** The Strong's focus, resources, and environment uniquely position the museum to undertake this work of collecting, preserving, and interpreting the history of video games. The Strong's focus on play, as I noted earlier, ensures that this work on video games is central to the museum's main endeavors, not ancillary. The museum is able to invest so much in these activities because it has the resources to ensure that these collections will be cared for over the long term. I often comment to people that long after I or any of my colleagues are gone the museum will still be around doing this work. That level of permanence is important for the future preservation of these materials. But perhaps the most important way The Strong is unique is the museum's ability to not only maintain world-class care of its vast collections related to video game history but to also create exhibits that will give tens of millions of people the chance to learn about and play with the most significant video games of all time.

Do you remember that scene in the movie *Toy Story 2* where the Prospector wants to get Woody to go to a museum where they will be preserved forever behind glass? Woody ultimately realizes that it's more important for a toy to be played with than to be preserved. As a museum, we try to do both. We work hard to preserve this important part of our culture, but we also try to give people the chance to play and enjoy these games. After all, a game can only be truly appreciated if it's played. Not only do we want to make sure it's not "Game Over," but we always want to make sure that it's "Game On" as well.