

evidence from other sciences (psychology and behavioral ecologists) that examine the link between cognition and “magical thinking” and discusses why it can be adaptive. Just as contemporary gamblers believe in the lucky numbers, colors, socks, or totems like elephants or trolls they bring to bingo games, all humans seem both to enjoy gambling and seek ways to benefit from it.

Finally, Catherine Cameron and Lindsey Johansson examine the downside of gaming and gambling—losing. In “The Biggest Losers: Gambling and Enslavement in Native North America,” they present data from oral tradition, ethnohistory, and ethnographies about the consequences of the loss of luck in gaming and gambling. In addition to losing resources, Native Americans gambled away their wives, children, and their own freedom. The authors pay particular attention to the conditions of this type of slavery, which was not life long, much less multigenerational. Often, extended kin would provide the resources to free both the gambler and his family (data indicates it was usually male gamblers who risked their families). Data also indicates it was difficult for men and their families to recover whatever status they had after losing their freedom. Cameron and Johansson claim that the stories of men losing everything through gambling often became part of the oral tradition of a society, warning others of the risks of gambling.

The archaeological data throughout the work are very detailed, but the chapters presume previous knowledge of archaeological methods. As such, this book is intended for those who have a familiarity with archaeology, anthropology, or prehis-

tory. The contributors, however, also present a much broader perspective for their data by illustrating archaeological connections to the oral traditions, ethnohistories, linguistics, and ethnographies of the various societies they study. Ultimately, this book should provide readers with a great deal of information about the differences and similarities of the aboriginal peoples of Native America through their games and their commonalities with contemporary societies.

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The Sega Arcade Revolution: A History in 62 Games

Ken Horowitz

New York: McFarland, 2018. 43 photos, bibliography, and index. 310 pp. \$39.95 Paper. ISBN: 9781476672250

Few scholars have studied Sega longer than Ken Horowitz. Since 2003, Horowitz has administered the Sega-16 website while interviewing dozens of programmers, designers, producers, and executives who created games for Sega-console platforms. The culmination of this research arrived in 2016 in the form of *Playing at the Next Level: A History of American Sega Games*, which covered the exploits of Sega of America from its founding in 1986 to the conclusion of the Dreamcast era. In 2018 Horowitz returns to tell the other side of the Sega story—the thriving arcade game development divisions that redefined the medium on numerous

occasions. The result is a book remarkably broad in its coverage but uneven in its depth and focus.

In the preface, Horowitz indicates that, although he intends to create a comprehensive history of Sega's arcade exploits around the world from its inception to its merger with Sammy Corporation in 2003, he will not attempt to chronicle completely the origins of the company. This decision feels eminently reasonable, because these origins are a particularly tangled mess. The company we know today as Sega had its genesis in an international, coin-operated distribution network called Service Games, originally founded in Hawaii, headquartered in Panama, and masterminded by two men—early pinball distribution magnate Irving Bromberg and his son Marty Bromley (née Martin Jerome Bromberg). Japan Service Games was just one of several distribution companies the duo established across Asia, Europe, and North America to bring slot machines, jukeboxes, and coin-operated amusements to U.S. military bases. In 1960 the company was terminated and replaced by two new firms, Nihon Goraku Bussan and Nihon Kikai Seizo, which inherited their predecessor's distribution and nascent manufacturing operations respectively. Recombined in 1964, the company became Sega Enterprises, Ltd., upon the purchase of Rosen Enterprises a year later and turned its focus away from slot machines and military bases to jukeboxes and game centers under David Rosen.

Sega's twists and turns continued over the next decade as it was acquired by Gulf & Western in 1969 and subsequently transformed into an American company under the control of a former cosmetics

subsidiary renamed Sega Enterprises, Inc. in 1974. This arrangement persisted until 1984, when following the divestiture of the majority of Sega Inc.'s North American operations, Gulf & Western sold the Sega Enterprises, Ltd. Japanese subsidiary to a consortium led by Isao Okawa of the CSK Corporation, which became Sega's new parent company. Sega then re-entered the North American arcade market in 1985 and remained relatively stable until the end of the millennium.

Although Horowitz does not devote extensive time to these various corporate reshuffles, he has produced what currently stands as the best and most coherent overview of Sega's early history. He also does an admirable job of explaining the relationship between Sega and the U.S. game manufacturer Gremlin Industries, a subsidiary of Sega between 1978 and 1983. Less successful are his attempts to track the further changes in the structure of Sega's development teams and marketing subsidiaries after 1984. He relies on no firsthand accounts to describe Sega Europe, and a single such account informs his discussion of Sega Enterprises USA—that of the late Tom Petit, who ran the subsidiary from 1986 to 1994. Furthermore, his attempt to provide an overview of Sega's various AM development teams results in contradictory information about the various teams established and in the perpetuation of the myth that an AM8 existed at Sega during the late 1980s that developed both *Phantasy Star* and *Sonic the Hedgehog*.

When Horowitz focuses on the arcade games produced by Sega, the results are somewhat mixed. In *Playing at the Next Level*, the author draws on dozens of interviews with the programmers and produc-

ers of first-party Sega console games to provide a cogent overview of how Sega of America organized its product development and how its many partner studios brought numerous beloved games to life. The result is a monograph as comprehensive as it is enlightening.

In *The Sega Arcade Revolution*, however, the author largely recounts the history of games developed in Japan, and here the language barrier often betrays him. He focuses on sixty-two games ranging from Sega's first video game, *Pong Tron* (1973), to *Planet Harriers* (2000), but a lack of English-language sources leads to uneven coverage. Entries on seminal games like *Turbo* (1981) and *Zaxxon* (1982) feature relatively little information about their development, while Horowitz explores lesser, though still noteworthy, games like *Flicky* (1984) and *Columns* (1990) in greater depth merely because interviews with their creators have been conducted in or translated into English. His analysis of the impact of these games in the marketplace is also occasionally problematic, because he often relies on Sega's own, inherently biased proclamations in trade magazines like *Replay* and *Play Meter* without appearing to subject them to critical scrutiny.

Despite these concerns, Horowitz is to be commended for creating the most comprehensive examination of Sega's arcade output yet attempted. By drawing on virtually every English-language source pertaining to Sega arcade game development and conducting fresh interviews of his own where practicable, the author has melded piecemeal revelations about seminal arcade games into detailed and informative write-ups. Although the

book spends more time chronicling the development of these games than analyzing their significance, *The Sega Arcade Revolution* should be required reading for any scholar aiming to contextualize Sega's vast influence on the development of the coin-operated video game.

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A Play of Bodies: How We Perceive Videogames

Brendan Keogh

Cambridge, MA: The MIT Press, 2018. Introduction, notes, references (bibliography and ludography), and index. 225 pp. \$39.95. Cloth. ISBN: 9781138189485

Brendan Keogh's *A Play of Bodies: How We Perceive Videogames* is an interesting read, particularly for its minute observations of how digital play actually happens, drawn from a massive knowledge of games. It is somewhat limited in references to game ethnography and play experience beyond the United States and Australia, but nevertheless, the connections Keogh makes between embodied play and contemporary game culture are strong and original contributions to the literature.

One of the consistent dreams of video games has been—at least since Janet Murray's *Hamlet on the Holodeck* (1997)—the total integration of player and game to the point that the player lives the story in full body immersion. This is the topic Brendan Keogh tackles head on in this interesting