

Side Scrollers: A Planar Odyssey



1. [Introduction](#): What are side scrollers? Covers three important games in the genre, their creators and companies.
2. [Historical Narrative](#): The genre's birth, rise, demise, and current situation.
3. [Contributions to Game Design](#): Storyline, game worlds, sound, and gameplay.
4. [Significant Factors and Conclusion](#): Cultural, business, and technological factors. Will side scrollers survive?
5. [References](#): The works and sites that made this site possible.

Introduction

Side scrollers are defined as games where a player controls a character that moves from one side of the screen to the other. As the player advances towards a screen edge (usually from left to right), the playfield shifts or scrolls in a certain direction (usually left) to adjust for the player's movement. In the vast majority of side scrollers, the player travels horizontally and is approximately centered on the screen at most times. Side scrollers are divided into two broad categories: shooters and walkers. Shooters feature

the player controlling a plane or starship, usually to destroy multiple air and ground targets; walkers feature player characters that walk or navigate through a plane world.

Side scrollers should be differentiated from platform games, in which the player's character jumps on or under platforms to achieve a certain goal. Two platform games that are not side scrollers are Donkey Kong (1981) and Mario Bros. (1983), in which Mario jumps on platforms in a fixed playfield (Poole, 28). On the other hand, Super Mario Bros. (1985) and its sequels are side-scrolling platform games. This project covers three games showcasing the history and development of side scrollers: **Pitfall** (1982), **Commander Keen** (1990), and **Castlevania: Symphony of the Night** (1997). All three are walkers that combine action and exploration, and contribute greatly to the history of game design. Sit back and enjoy a chronicle on one of the most influential gaming genres of all time.

Pitfall was produced in 1982 for the Atari 2600 by [Activision](#), the first major third-party publisher in gaming history. It sold over 4 million copies, held the top slot on the Billboard charts for 64 weeks, and was named video game of the year in 1982. Pitfall became the top selling title of all VCS cartridges except Space Invaders, Asteroids, and Pacman, and thus was Atari's most successful game never to reach the arcade. Successful ports for the Atari 5200, Commodore 64, and Colecovision home systems did emerge within several years. Pitfall also spawned a number of sequels, including Pitfall II: The Lost Caverns (1984), Super Pitfall (1986) for the NES, and Pitfall: The Mayan Adventure (1995) for the PC and several console systems. Pitfall 3D: Beyond the Jungle (1998), for the PlayStation, broke the series from its side-scrolling roots.

Pitfall's sole designer was David Crane, a senior designer at Atari and a founder of Activision in 1979. Other than Pitfall and Pitfall II, Crane's critically acclaimed works include Activision Decathlon, Ghostbusters, and A Boy and His Blob. Crane also developed two integrated circuits (DPC and a bank selecting chip) and was named designer of the year in 1983 and 1984 by three magazines. Currently, Crane is the CTO and co-founder of Skyworks Technologies, specializing in multimedia development and interactive marketing. Activision now is an international developer with hundreds of credited titles for over 20 platforms. Its recent successes include Mechwarrior 2, Quake II, Zork Nemesis, and Tony Hawk's Pro Skater.

On December 14, 1990, eight years after the release of Pitfall, [Apogee](#) and [id Software](#) released another definitive side-scroller, Commander Keen. The game was designed for the PC in just under three months by three now-legendary programmers: Tom Hall, John Carmack, and John Romero. Adrian Carmack (no relation to John) provided artwork. Commander Keen helped popularize the idea of shareware, and its overwhelming success convinced its designers to quit their day jobs at [Softdisk](#) to concentrate on id Software. id Software is now famous for its definitive first-person shooters, particularly its trilogy of Wolfenstein 3D, Doom, and Quake. Apogee, now the parent company of [3D Realms](#), also has several popular first-person shooters to its credit, including Shadow Warrior, Rise of the Triad, and the Duke Nukem series. Both Apogee and id are members of the [Shareware Hall of Fame](#).

Keen's four designers collaborated to create Wolfenstein 3D and Doom, then parted ways as id became

more technology-focused. Tom Hall, who developed Keen's storyline, moved to 3D Realms to work on projects such as Duke Nukem II, Rise of the Triad, and Terminal Velocity. Currently, Tom heads a team at [ION Storm](#) in the development of [Anachronox](#), a 3D RPG based loosely on the Quake 2 engine. John Romero stayed with id until August 1996 to produce Quake, but left afterwards to form Ion Storm with Tom Hall and two others. His latest work, the highly anticipated [Daikatana](#) (2000), received mixed but generally negative reviews. Along with artist Kevin Cloud, John and Adrian Carmack are the only id employees remaining from the Doom era. John is the owner and lead programmer, and Adrian heads the graphics/artwork team. Having finished Quake III: Arena in 1999, id Software's next release will be [Doom 3](#), of which a [preview](#) (~14 MB) is available. John Carmack and John Romero were featured in TIME Magazine's Digital 50 ([Carmack in '99](#) and [Romero in '98](#)), just a few spots under such notables as Steve Jobs and George Lucas.

Commander Keen's first series, Invasion of the Vorticons, consists of three episodes: Marooned on Mars, The Earth Explodes, and Keen Must Die! A two-part follow-up series (Goodbye, Galaxy) continued Keen's adventures, concluded by a separate sixth episode distributed by FormGen. Only the initial episodes of each series (Marooned on Mars, Secret of the Oracle) were available as shareware. Another Keen game, sometimes designated "The Lost Episode" or "Episode 3.5," was created as a contractual obligation to Softdisk and lies in between the major series in terms of technology and storyline. As of March 1, 2001, [a port of the second series](#) is being made for Nintendo's Game Boy Color, marking the first non-PC version of the game.

Castlevania: Symphony of the Night (SotN) signifies the progress of the side-scrolling genre in recent times. Produced on October 2, 1997 by [Konami](#) for the PlayStation, the title overcame initial skepticism to earn rave reviews as its impressive depth slowly surfaced. A [ZDNet review](#) even hailed Castlevania: SotN as "quite possibly the best 2D action side scroller ever." The project, headed by one of Konami's more experienced design teams, featured Iga-san as director and Ayami Kojima as character designer. Michiru Yamane composed and arranged the highly acclaimed [soundtrack](#). Anime stars Ryoutarou Okiayu (leader of E.M.U.) and Chisa Yokoyama (Sasami in Tenchi Muyo) provided character voices for the Japanese version, but were dubbed badly in the English translation.

Konami and its Castlevania series are household names, and both have long and successful histories. Konami released its first American title, Block Game, in 1978. Its first successful title, the side-scrolling shooter Scramble (1980), set the stage for a large number of console and arcade hits in the following two decades. Many were side-scrollers, including Rush'n Attack (1985), Contra (1986), Teenage Mutant Ninja Turtles (1989), The Simpsons (1991), and X-Men (1992). However, Konami abandoned this genre as it lost popularity; today, its games mainly focus on sports and adventure games with 3D perspective. Some notable recent productions include Metal Gear Solid, Silent Scope, Fisherman's Bait, and Dance Dance Revolution.

Nearly twenty Castlevania games exist for over ten console systems. Other than Castlevania 64 (1999) and Legacy of Darkness (1999) for the Nintendo 64, all games in the series are 2D side scrollers, and each game is a continuation from a previous title. The original Castlevania (1987) for the NES started

from an obscure MSX home computer game called Vampire Killer (1986). Likewise, Castlevania: SotN continues from Dracula X (1996), a SNES title. Iga and Kojima are now collaborating on a "new" Castlevania game for the PlayStation: [Akumajyou Dracula](#), an enhanced version of the original Castlevania.

Historical Narrative

David Crane created the side-scrolling genre unintentionally while designing Pitfall in 1982. He had designed a running man, and wanted to make a game from it. In ten minutes' time, Crane developed the idea of a man running on a path in the jungle; in about three months, he had a completed product. Crane's creativity was fueled by an easygoing style. According to an article in the January 1984 edition of *Hi-Res Magazine*, "Crane wouldn't know a time clock if he hit his head on one." However, Crane was amazingly efficient (typing in ten-minute bursts of microcode, finishing projects in three months that would normally take a year), and paid fastidious attention to detail to ensure that gameplay would be just right (spending a week to make it easier for Pitfall Harry to jump from a standing start). Also, as with all Activision games, Crane personally signed and added playing tips to the instruction manuals of Pitfall and its sequel.

The result was a smash hit, followed by a wave of knockoffs attempting to capitalize on Crane's success. No game achieved equal prominence until Super Mario Bros. emerged for the NES in 1985, soon becoming the most recognized title in video game history. The Mario series featured characters and a plot that soon became archetypes: Mario, an Italian plumber, travels through eight worlds to save Princess Toadstool from the clutches of Bowser, perhaps video game's first recognized villain. Gameplay, easy enough for kids to understand but challenging even for experts, also played a major role in attracting attention. These factors built the cornerstone of Nintendo's franchise and kept the series strong through its sequels, Super Mario 2 (1988) and 3 (1990).

In 1990, John Carmack, then a programmer for Softdisk, developed a scrolling technology for the PC similar to that used for the NES. In the course of one night, Carmack and fellow employee Tom Hall reproduced a version of Super Mario 3 as a prank, dubbing their work "Dangerous Dave in Copyright Infringement." Their intended "victim," John Romero, immediately saw the commercial potential of the application and submitted the demo to Nintendo, only to be met with rejection. (At the time, Nintendo was intent on controlling both hardware and software.) Softdisk was also disinterested (due to lack of CGA support), so the trio decided to work independently. With some funding from Apogee founder Scott Miller, Commander Keen launched on December 14. Within two months, the three designers and artist Adrian Carmack had received their first \$10,000 royalty check and quit Softdisk to found id Software.

The side-scrolling genre reached its height of popularity in the late '80s and early '90s, dominating arcade, console, and computer platforms alike. Games such as Sega's Golden Axe and Capcom's Final Fight enamored arcade players and managers alike; at one point, Konami's TNMT machines were present in 98% of arcades nationwide. The Mega Man, Adventure Island, and Double Dragon series also experienced great success. Likewise, the id team, eager to capitalize on its success, rolled out six sequels

(including 3.5) to the original Keen episode in less than two years.

At the end of Keen's sixth episode, a screen reads, "See you Christmas '92 when Commander Keen returns to battle for the universe! It'll be the biggest Keen ever!" Indeed, an ambitiously planned second trilogy (*The Universe Is Toast*) was never completed, due to the success of *Wolfenstein* and a focus on projects such as *Spear of Destiny* and *Doom*. Around this time, 2D side scrollers began losing popularity to one-on-one fighters (e.g. *Street Fighter II*) and games in all genres with 3D perspectives. According to Tom Hall, "My last idea for Keen 7-9 was a game world [with] 3D, and at certain places the camera rotated with you for different games. It was halfway between *Super Mario 64* and *Pandemonium*. This was two years before those games came out" (Stubhaug et al.). Even before this time, popular arcade scrollers quickly ceased production, and NES cartridge sales ground to a halt. Konami's dominant status ended as it was forced to make an abrupt transition to unfamiliar genres.

Today, side scrollers often get little respect. As a recent [Happy Puppy review](#) puts it, "Old-fashioned two-dimensional side-scrolling games are considered as unhip as a convention of gaming journalists." However, some modern side scrollers have been rated highly, particularly PC games such as *Abuse*, *Abbe's Oddysee*, *Abbe's Exoddus*, *Earthworm Jim*, *Rayman*, and *Heart of Darkness*. *Alien vs. Predator* and the *Metal Slug* series have performed well in arcades, and the critical acclaim and appeal of *Castlevania: SotN* shows that console demand still exists.

Contributions to Game Design

The foremost contribution of side scrollers to game design may be their ability to construct effective storylines. Side scrollers share common elements with literature: a protagonist, goals that need to be achieved, conflict, and a natural progression. Let's start with *Pitfall*, which has a simple storyline. You control Pitfall Harry, a world famous adventurer, through a jungle on a treasure hunt. The goal is simply to attain the maximum score of 114,000 by collecting all 32 treasures in 20 minutes. You receive three lives each game, losing one each time you fail to avoid one of the game's fatal hazards: fires, crocodiles, scorpions, snakes, water, and pits. You start with a base score of 2000, which is increased a few thousand points for every treasure collected, but reduced by falling down holes and being hit by logs. To attain a perfect score, all minor hazards must be avoided, thus requiring the player to possess flawless reflexes and concentration.

Commander Keen presents a more developed storyline, giving the game a proper introduction and conclusion (and transitions between the episodes). The game's original premise was developed in 15 minutes by Hall, building on Carmack's helpful start of "a kid that saves the galaxy or something." Billy Blaze is a precocious 8-year-old who transforms into an intergalactic superhero, Commander Keen, while his parents are asleep. In the first episode, aliens from the planet Vorticon VI steal four parts of Keen's ship, hiding them in heavily guarded Martian cities. Your primary task is to recover these parts. In successive missions, Keen has to save Earth from a Vorticon invasion, rescue members of the High Council, and destroy the Shikadi's Armageddon Machine, the Omegamatic. Keen also has a rival, the evil genius Mortimer McMire, who masterminds most of the invasions and taunts Keen periodically.

Numerous subplots appear in the Keen games, as you slowly discover subtleties and hidden features of the landscape. Invisible blocks, hidden treasures and secret levels add a puzzle element to the missions, greatly enhancing the replay experience. The game also features signs encoded in the [Standard Galactic Alphabet](#), a frustrating mystery only decipherable by extensive travel or guesswork. Flexibility is another hallmark of the Keen series, as most of the game scenes can be traversed in any order (as in [Super Mario World](#)). Keen can acquire extra lives with every 20,000 points scored, although a high score is not necessary to finish the game. Finally, notice that a book does not have to be finished in a single sitting, contributing to its longevity. Similarly, users can save Keen games and continue them later, allowing the experience to "sink in" over time and become worthwhile.

The Castlevania storyline is one of the most consistent and developed in two decades of console gaming, coming close to those of the Mario and Zelda series. Loosely related to Bram Stoker's *Dracula*, each Castlevania game features the same premise: a vampire hunter, usually bearing the last name of Belmont, is called to Castlevania once every hundred years to defeat Dracula and his minions. Castlevania: SotN takes place in 1796, four years after the conclusion of Dracula X, in which Richter Belmont disappeared. The new protagonist is Dracula's half-vampire son Alucard, who seeks to undo his father's evil and find Richter. SotN adds new depth to the hundreds of heroes and bosses already present in the series, featuring prominent female characters (Maria and Lisa) and even giving Dracula a personality. Two playable characters and four different endings ensure that the story remains far from over.

The exploration of worlds is another design characteristic developed through years of elaboration and refinement. There are 255 game screens in Pitfall, but many are repetitive, simply juxtaposing hazards to make gameplay more difficult. Like many Atari 2600 games, Pitfall was limited to 4 kilobytes of RAM, and thus was restricted in its number of presentable objects. Pitfall breaks one traditional side-scroller rule: it is a circular maze that can be traveled in either direction. In fact, the game is easier to beat going left. There is no way to cross all screens in 20 minutes, but if Harry goes underground, each screen he travels warps him three screens ahead. Thus, considerable planning and mapping is required to collect all treasures in time.

Scenes in the Keen games are diverse and extensive, and often take many tries to complete. While Pitfall emphasizes horizontal travel, Keen's gameplay is much more vertical, making the player constantly pogo and jump. Keen can also move forward and backward at will, and often needs to retrace his steps to lure enemies into traps or access certain exits. Backgrounds are diverse, including fiery caves, frozen worlds, lush forests, and elaborate pyramids. According to Tom Hall, "It was fun to... make you want to explore the levels again" (Stubhaug et al.).

According to an [ign.com review](#), Castlevania: SotN "features more secrets than the Pentagon." Actually, it only contains 1890 rooms, but the designers were gracious enough to provide an in-game map and numerous save points. Alucard can navigate around the entire castle at will, although he needs to fly or transform into mist to reach several areas. Exploration is vital to success, and a normal finish (defeating Dracula) may in fact lead to the worst ending. The best ending can only be seen upon the discovery and significant completion of a huge game area: an inversion of the entire castle.

Sound quality, at most a minor component of early side scrollers, has ramped up exponentially in recent years. Pitfall featured one quality sound effect: a Tarzan "yell" composed of a few tones. After eight years, Commander Keen only improved on this slightly, first by adding effects for the pogo stick and raygun, then adding light MIDI background music in later episodes. In comparison, Castlevania: SotN features a 34-song soundtrack composed by a professional, over an hour in length. You may mistake one reviewer's commentary for a symphony orchestra critique: "String and brass sections and individual instruments come across passably without drawing undue attention from sounding artificial. Choir accompaniment is appropriately dark and moody, while pipe organs bellow" (Corn).

Finally, gameplay is the major strength of most side scrollers, and has developed impressively from the days of Pitfall. Harry can only perform three actions: jump, climb up and down ladders, and swing on vines. However, these rudimentary controls are sufficient to overcome all of the numerous obstacles in the game. In comparison, Commander Keen can enter doorways, use a pogo stick, and shoot lasers from his raygun in addition to jumping and climbing. No longer is it possible to complete the game by pure evasion; violence is often necessary to get past the robots, aliens, and other creatures guarding keycards and exits.

Castlevania: SotN takes gameplay to yet another level by combining RPG elements with the traditional side-scrolling action game. Alucard can do more than run, jump, and fight: he can equip weapons and armor, store items in an inventory, sell and buy items, summon familiars, shapeshift, and cast magic. He also gains experience and levels by defeating enemies, and possesses four traditional RPG character statistics: strength, constitution, intelligence, and luck. Richter can perform special attacks and movements through various button combinations, similar to those used in the Street Fighter series. Elements obtained from different genres have reduced the stagnation of early, formulaic side scrollers, allowing players to explore a multitude of possibilities in facing ever-original challenges.

Significant Factors and Conclusion

Side scrollers have had tremendous impact on culture through their storylines, which are generally child-friendly, imaginative, and almost always remembered with nostalgia. Storylines have advanced almost in proportion with the gaming industry, both in complexity and depth, and likely helped many 3D titles gain initial interest. Scrollers also feature some of the most recognized characters, plots, and scenes in life, some as well-known as "accepted" media such as literature, video, film, and art. Increasingly, game design and traditional media are melding to provide unprecedented quality of interactive entertainment.

According to MIT professor Henry Jenkins, "The scroll games have built into them the constant construction of frontiers--home regions--that the... player must struggle to master and and push beyond, moving farther and farther into uncharted space" (279). Players are required to complete levels of increasing difficulty, navigating through difficult, often repetitive spaces. Learning takes place through intuition, or by trial and error. If you think about it, side scrollers are reasonable, albeit simplified, microcosms of life.

Will side scrollers survive in the future? Despite their advances, side scrollers are considered technologically weak and are disfavored by companies facing the pressure to go 3D (if they haven't already). This drive, very strong in the mid-90s, has been lessened somewhat, as 3D technology has been available for several years now. SIGGRAPH columnist Richard Rouse III asserts that 3D technology has "allowed for a level of excitement and immersion that was not found in 2D games." Gauntlet and Prince of Persia certainly do not provide the visceral thrills or visual acuity of Quake or Tomb Raider. However, Rouse also compares a 3D engine to special effects in films, extremely useful for movies like *Starship Troopers*, but useless (and probably detrimental) to *As Good As It Gets*. 3D games thus should not do away with side scrollers, as both can be placed within appropriate context.

References

- Pitfall
 - Atari 2600 Pitfall manual (<http://www.execpc.com/~ozyr/atari/pitfall.html>)
 - ClassicGaming.com: Game of the Week (Pitfall) (<http://www.classicgaming.com/rotw/pitfall.shtml>)
 - Classic Gaming Expo 2000 Distinguished Guest - David Crane (<http://www.cgexpo.com/bios/dcrane.html>)
 - AGH Library -- David Crane (<http://www.atarihq.com/othersec/library/dcrane.html>)
 - games.ign Company Info: Activision (<http://games.ign.com/publishers/4.html>)
 - Pitfall! article @ Retro Trauma (<http://www.zx.ru/www.fortunecity.com/victorian/delacroix/184/con003.htm>)
 - Trionfo, Adam and Chris Federico. "The Legend of Pitfall Harry: From the VCS to the PC" (<http://www.geocities.com/SiliconValley/Server/2990/ocgs/issue5/harry.html>)
- Commander Keen
 - 3D Realms: A Look Back at Commander Keen (<http://www.3drealms.com/keenhistory/>)
 - ClassicGaming.com: Game of the Week (Commander Keen) (<http://www.classicgaming.com/rotw/ck.shtml>)
 - Stubhaug, Tore, Ben Cruz, and Dave Allen. Cerebral Cortex 314 (http://www.classicgaming.com/cc314/index_i.html) - Contains detailed descriptions of all games in the Commander Keen series, and interviews of Tom Hall and John Romero.
 - Anachronox Interview (<http://rpgvault.ign.com/features/interviews/anox.shtml>) - Tom Hall's latest game, with a brief biography.
 - Meyer, Bill. "John Romero Quits id Software." (<http://games.netscape.com/News/Item/0,3,0-70,00.html>)
 - Primagames.com: Interview with Daikatana Creator John Romero (<http://www.primagames.com/news/interview/921/>)
 - Hangin' with John Romero (<http://www.loonygames.com/content/1.11/feat/>)
 - Slashdot Interviews: John Carmack Answers (<http://slashdot.org/interviews/99/10/15/1012230.shtml>)
- Castlevania: Symphony of the Night (SotN)

- Alucard's Shield (<http://www.afn.org/~afn17933/castlevania/>) - A comprehensive resource for information, tips, and strategy. Contains maps, storyline, walkthrough, and character profiles.
- Gamebits: Castlevania: SotN (<http://www.gamebits.net/psx/cstlvnia.html>)
- Horwitz, Jer and Mike Whalen. "The History of Konami." (<http://www.videogames.com/features/universal/konami/index.html>)
- Baran, Andrew and Tracy DiViscour. "Castlevania: SoTN Strategy Guide." (<http://www.videogames.com/features/psx/castle/>) - A fairly brief but clear description of the rooms, monsters, weapons, and secrets of the game.
- Nym Net: Evaluation: Castlevania: SoTN (<http://www.sickduckprod.com/nym/evaluation/castlevaniasotn.html>)
- RPGFan Reviews - Castlevania SotN (http://www.rpgfan.com/reviews/symphonyofthenight/Symphony_of_the_Night-2.html)
- GameFAQs: Castlevania (<http://www.gamefaqs.com/console/psx/game/19969.html>) - Large compilation of detailed FAQs, checklists and walkthroughs.
- The Castlevania Dungeon (<http://www.classicgaming.com/castlevania/dungeon.htm>) - Information and reviews for all Castlevania games. Updated extremely frequently.
- Published Works
 - Jenkins, Henry. "Complete Freedom of Movement: Video Games as Gendered Play Spaces." *From Barbie to Mortal Kombat: Gender and Computer Games*. Eds. Justine Cassell and Henry Jenkins. Cambridge: MIT Press, 1998. 262-97.
 - Poole, Steven. *Trigger Happy: Videogames and the Entertainment Revolution*. New York: Arcade Publishing, 2000.
 - Rouse III, Richard. "Do Computer Games Need to be 3D?" *SIGGRAPH Computer Graphics Newsletter*, Vol. 32, No. 2. Ed. Gordon Cameron. ACM SIGGRAPH, May 1998.

[STS 145](#) (History of Computer Game Design)

[Mark Tong](#), 3/22/01

[Disclaimer](#)