

Game Design

- Game History -

Prof. Dr. Andreas Schrader
ISNM International School of New Media
University of Lübeck
Willy-Brandt-Allee 31a
23554 Lübeck
Germany
Schrader@isnm.de

Game History

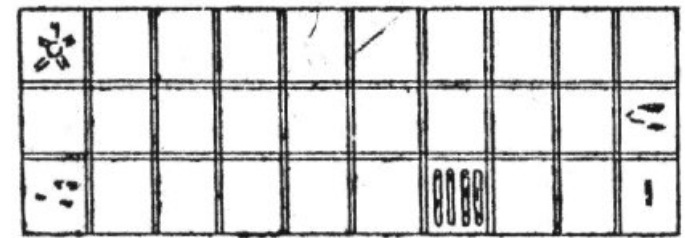
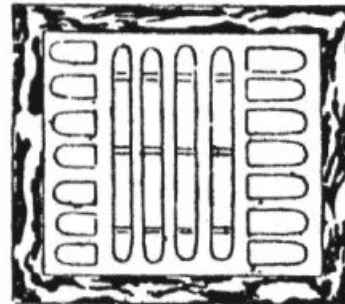
- ❑ Some of the oldest known games are from ancient Egypt
 - Senet was played by people from all hierarchies
 - The exact rules of this board game are not known
 - It might be the predecessor of backgammon
 - A very good overview of old games can be found at <http://www.tradgames.org.uk/index.html>



Game from the grave of Tutanchamun



Queen Nefertari playing a single-player version of Senet
Daughter-in-law of Egyptian Pharaoh Seti I,
(ruling from 1314 to 1304 BC)

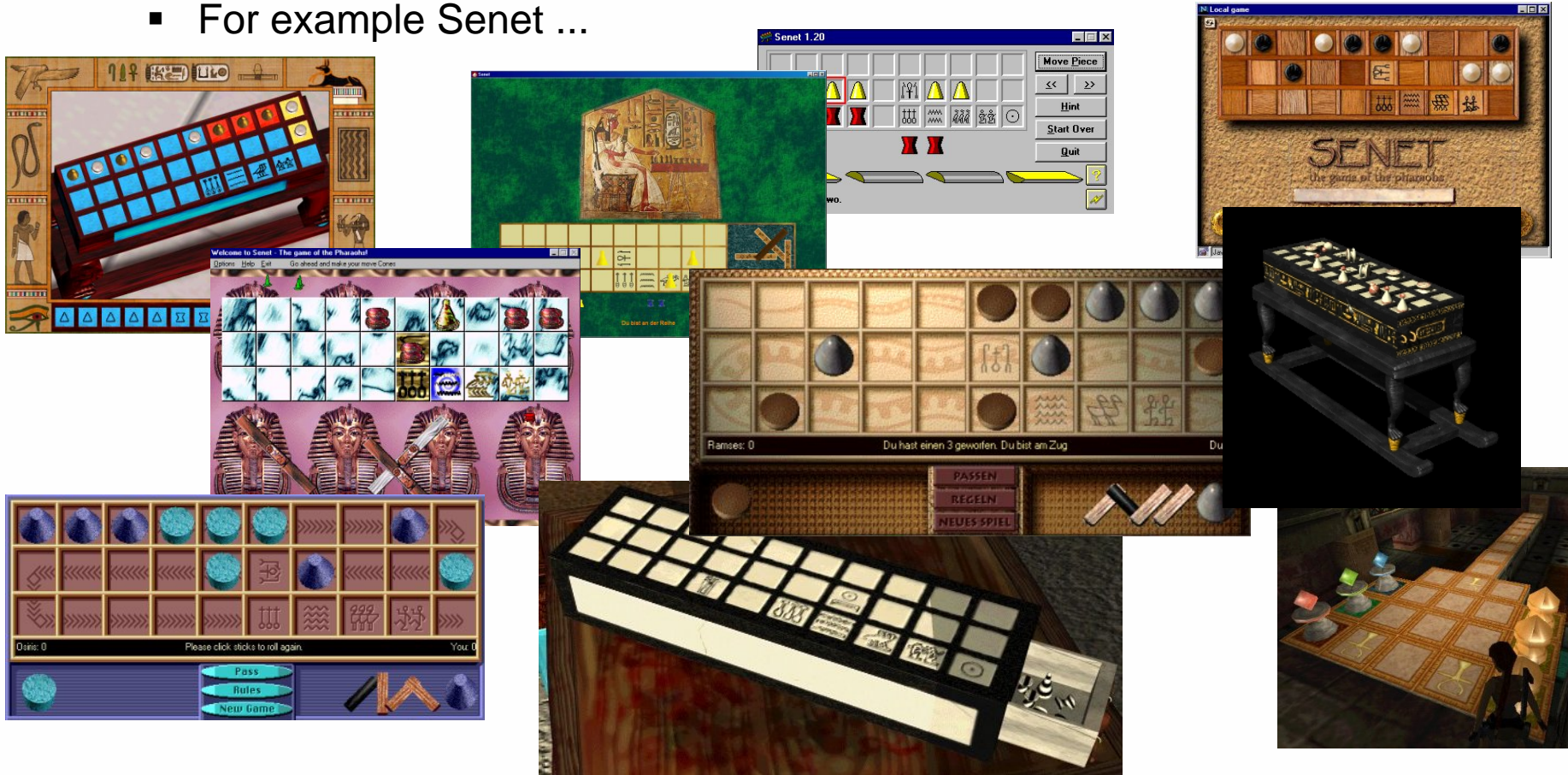


Oldest known drawing from the grave of Pharaoh Hesy
(ca. 2686-2613 B.C.) in Saqqara

Source: <http://www.homestead.com/wysinger/nefertari.html>, <http://home.t-online.de/home/Markus.Kantz/frsein.htm>

Game History

- ❑ Most of the old games are today available as free software
 - For example Senet ...



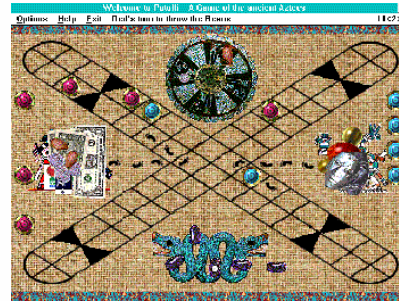
Source: <http://home.t-online.de/home/Markus.Kantz/frsein.htm>

Game History

- ❑ Many more ancient games are today available as shareware
 - Patolli (kidney bean) is an ancient Aztec board game
 - Played by Teotihuacanos, Toltecs, the inhabitants of Chizen Itza, the Aztecs, and the Mayans (from 200 B.C to 1521 A.D.)



Patolli Game



Mehen
God of the snake



Original Mehen Board Game



Mehen
The forbidden game of the snake

- Mehen was the egyptian god of the snake
- The Mehen is probably from 3000 B.C.
- It was later on forbidden

Source: <http://www.xmission.com/~psneeley/Shareware/aztecpat.htm>, <http://www.xmission.com/~psneeley/Shareware/Mehen.htm>
<http://www.artehistoria.com>, <http://www.crystalinks.com/egyptgods7.html>

Game History

❑ Pin & Ball games

- Pin & ball games are considered to be the start of the computer game history
- The oldest machines are from 1870
- The first version where all purely mechanical
- Very soon electrical support (ringing bells, bumpers) and later on computer controlled items (scores) have been added
- A comprehensive collection of info can be found at the Internet Pinball Database at <http://www.ipdb.org/>



1871 Redgrave Parlor Bagatelle
The first with a spring-loaded plunger

Source: <http://www.ipdb.org>

Game History

❑ Pin & Ball Games

- 1932 Bally Manufacturing Co. was born
- Note the money slot at the front
- The machines were placed in saloons and bars and had to be robust



BALLYHOO
Never Successfully Imitated

It was to be expected, of course, that many attempts would be made to imitate BALLYHOO. For BALLYHOO is the miracle machine of the industry. Never before was there a game so popular. Never before had there been such a standing success as that achieved by BALLYHOO almost over night.

The "imitations" have appeared. The playing field of BALLYHOO has been adopted, adapted, imitated, cut down and even reproduced exactly in a small effect in each in an attempt to reproduce the popularity of BALLYHOO.

The designers and builders of BALLYHOO accept the compliment. It is a singular fact, though, that there has been no successful imitation of BALLYHOO.

The reason for BALLYHOO's success lies only partially in the playing field. It is contained in every part of this scientifically designed game—from the handsome walnut finished cabinet, down to the smallest pin. How impossible, then, to duplicate the results of BALLYHOO by copying only a part of this popular machine? There can be only one duplicate of BALLYHOO—and that is another genuine, original BALLYHOO.

On its graceful, strong wood legs, BALLYHOO is now a greater sensation than ever. If you haven't seen this new combination, by all means order a sample today. Try it out on location. If within seven days BALLYHOO has not proved its money-making power to you, ship it back and we'll refund every penny of your money.

There is only one BALLYHOO—there is nothing else like it.

IMMEDIATE DELIVERY

BALLY MANUFACTURING CO.
310 W. Erie Street, Chicago, Ill.

Complete With Wood Legs
Sample \$19
In Lots of 5 \$18 each
In lots of 10 \$17 each

BALLYHOO Without Legs
Sample Machine...\$16.50
Lots of 5.....\$15.50 each
Lots of 10.....\$14.50 each

May be had for 1 cent play with 7 balls or 5 cent play with 10 balls.



1932 Bally Ballyhoo

Source: <http://www.ipdb.org>

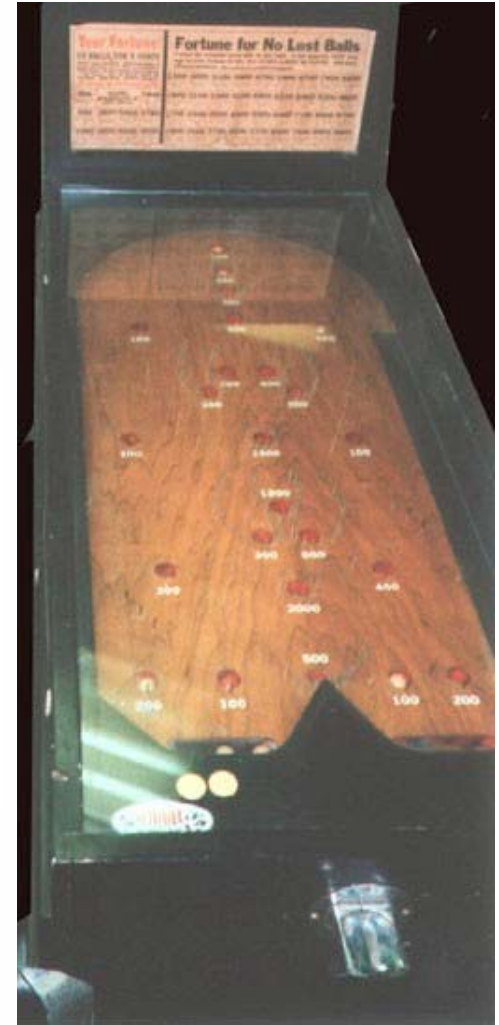
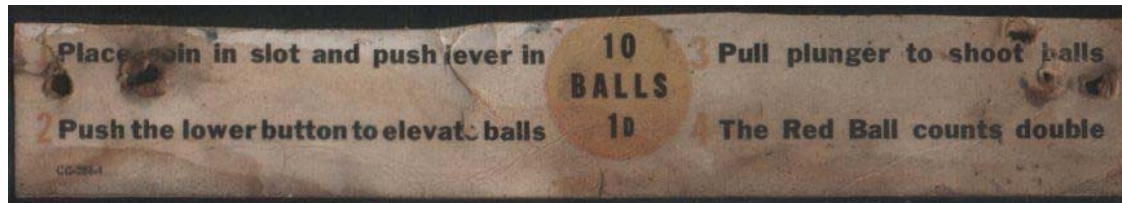
Game History

❑ Pinball

- 1932 Mill's Official
- First use of the name *Pinball*
- The commercial aspect becomes more important

A REAL MONEY MAKER
FOR THE COUNTER

MILLS COUNTER
OFFICIAL



Source: <http://www.ipdb.org>

Game History

❑ Pinball

- 1934 Pacific Amusement
- First use of electricity (ringing bell)
- Used dry cell battery



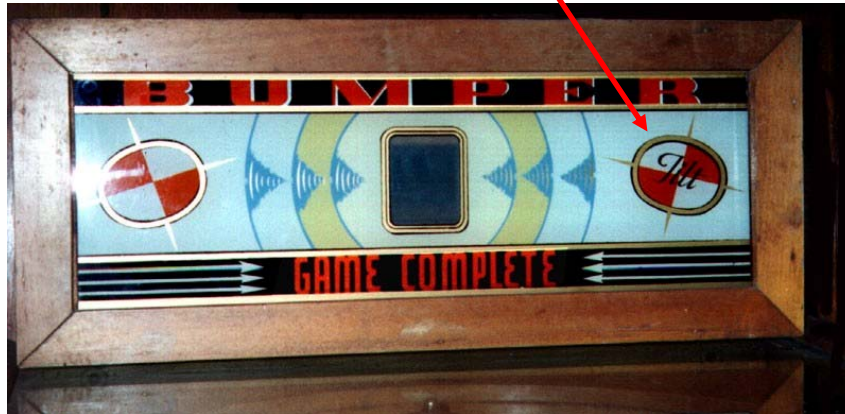
Source: <http://www.ipdb.org>

Game History

❑ Pinball

- 1936 Bally Bumper
- First machine with electrical scoring bumpers

Tilt Sensor!
Cheating started ...



Source: <http://www.ipdb.org>

Game History

- Pinball
 - 1947 Gottlieb Humpty Dumpty

First use of
flippers



Announcing...
The GREATEST TRIUMPH in PIN GAME HISTORY!

GOTTLIEB HUMPTY DUMPTY

with the sensationally new
PLAYER-CONTROLLED FLIPPER BUMPERS

Phenomenal is the word for this play-inspiring Gottlieb innovation! Unique Flipper Bumpers are motivated by sensitive fin-ger-tip control buttons on each side of the cabinet. With skill and timing, the player can control balls and send them zooming right back to the top of the playing field for additional scoring! The combination of controlled Flipper Bumper action and controlled ball action provides amazing earning power... a proven "shot-in-the-arm" for any location!

There is something NEW under the sun... get this game of SKILL and TIMING on location NOW!

"There is no substitute for Quality!"
A PRODUCT OF
D. Gottlieb & Co.

HUMPTY DUMPTY also features:
HIGH SCORE
SEQUENCE
BONUS
KICKER POCKETS

1140 NORTH KOSTNER AVE., CHICAGO 51, ILLINOIS

ORDER FROM YOUR DISTRIBUTOR

GAMING INDUSTRY MEMBER

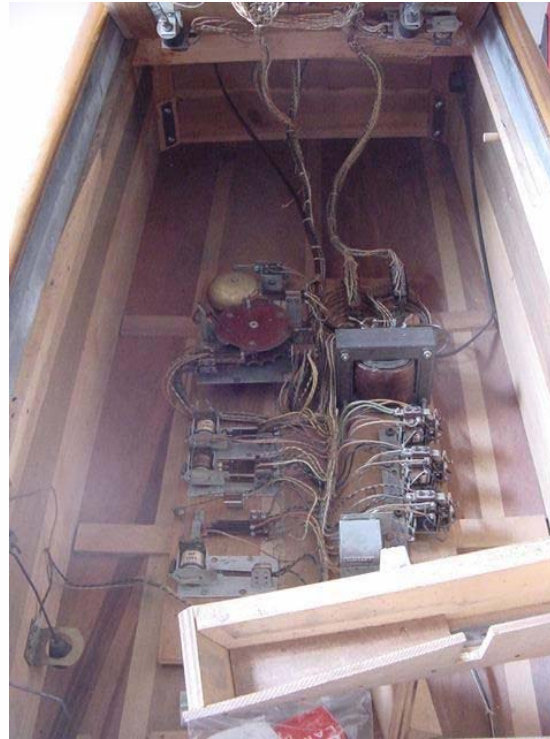
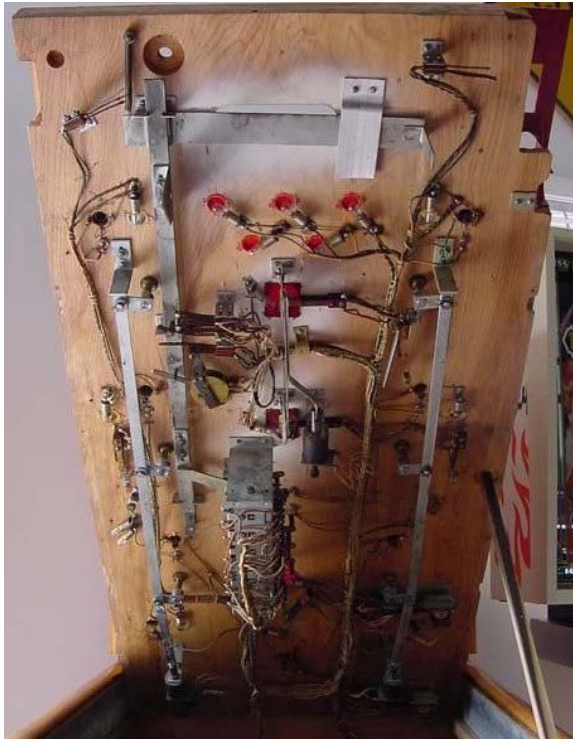


Source: <http://www.ipdb.org>

Game History

❑ Pinball

- 1947 Gottlieb Humpty Dumpty
- View from inside



Source: <http://www.ipdb.org>

Game History

❑ Pinball

- 2003 The Simpsons
- Stern Pinball Inc.

Fully
computerized
Inbuild displays

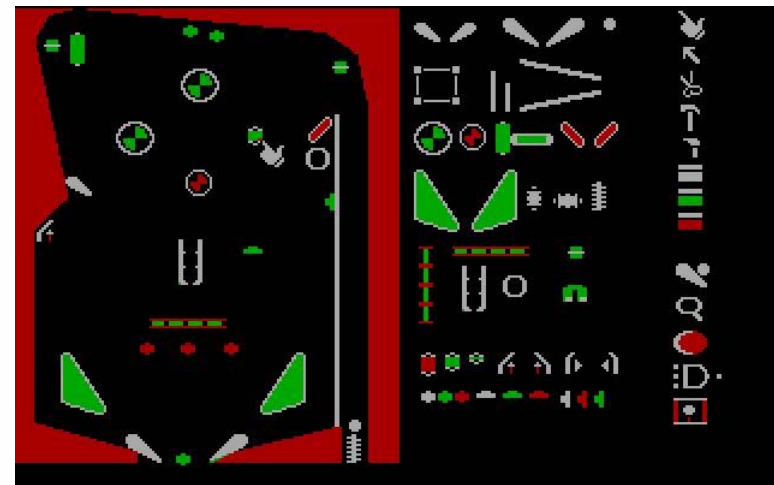


Source: <http://www.ipdb.org>

Game History

❑ Pinball Software Simulations

- EA Games - Pinball Construction Set (1982)
- Computer Games became a serious competitor for arcade game machines
- Soon, also pinball simulators came out
- The construction set was built by Bill Budge, who developed the Atari II
- A drag-and-drop editor allowed for designing your personal pinball set
- Remember: Windows was not born, neither was the Macintosh!
- Most graphic cards had only 4 colors
- EA also published Music Construction Set & Adventure Construction Set
- Retro is still an issue, e.g. at <http://www.pinmame.com/>

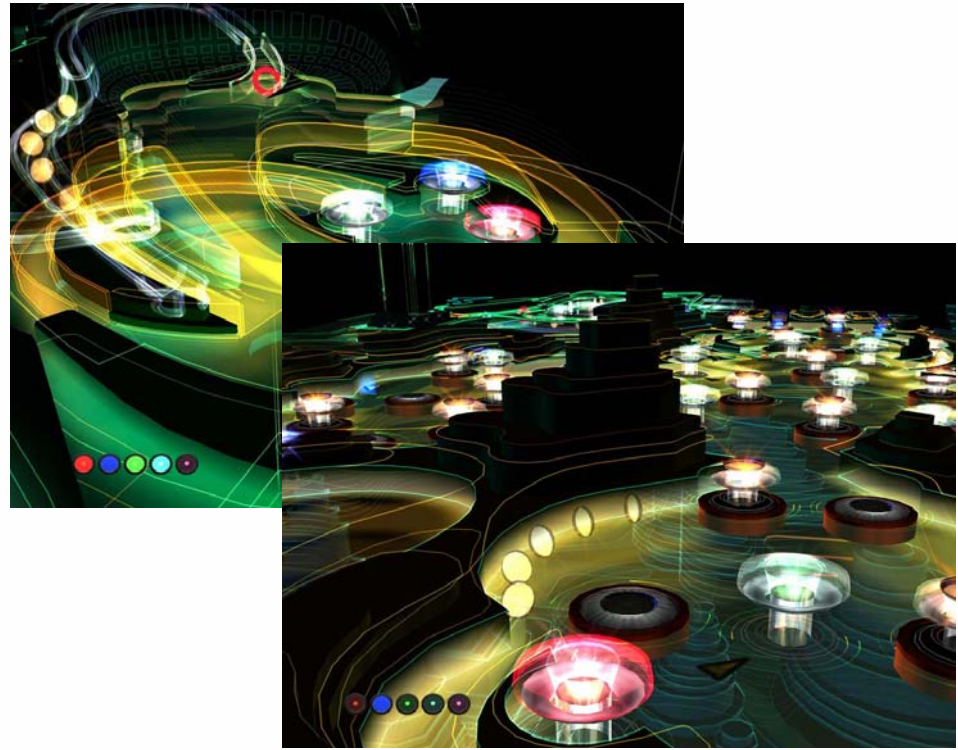


Source: <http://archive.gamespy.com/halloffame/september02/pcs/>

Game History

❑ Pinball Software Simulations

- Special Versions of Pinball Simulators are still developed today
- Sierra Nascar 3D Pinball (1998), Ubisoft – Flipnic (PS2, 2003)

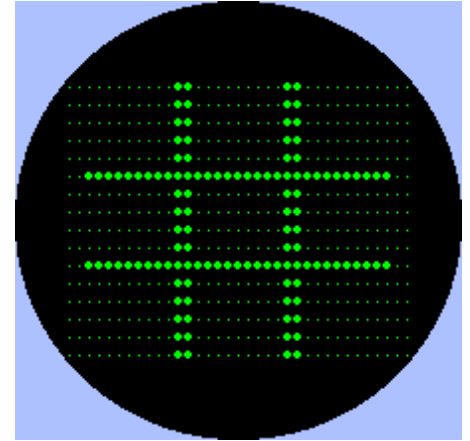


Source: <http://www.intelligamer.com/family/3dnp/3dnp.asp>, <http://www.playstation.jp/scej/title/flipnic/>

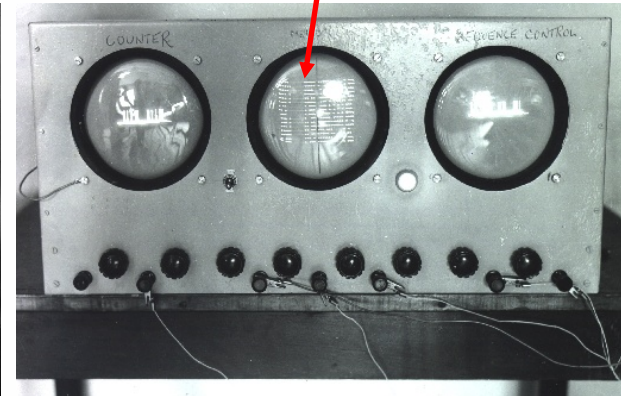
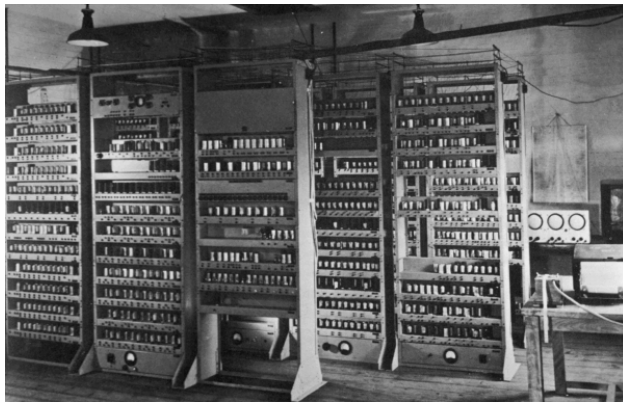
Game History

❑ *Noughts And Crosses* (1952)

- A Tic-Tac-Toe game programmed in Cambridge University (England)
- A.S. Douglas used this game as part of his PhD thesis on human computer interfaces
- A CRT with 35x16 pixels on the EDSAC machine (3.500 vacuum tubes) was used as the display
- The game was played against the machine using a mechanical telephone dialer



Simulation of Noughts and Crosses



Source: <http://www.pong-story.com/1952.htm>, <http://www.dcs.warwick.ac.uk/~edsac/>, www.cl.cam.ac.uk/Relics/archive_photos.html

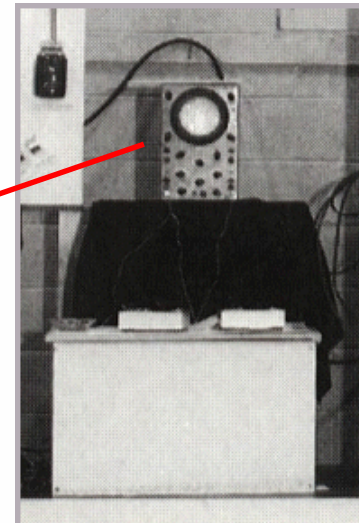
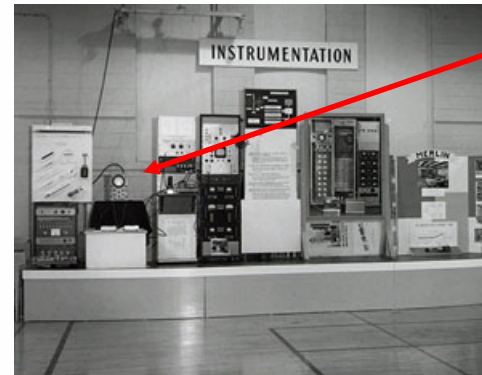
Game History

❑ *Tennis For Two* (1958)

- The first documented electronic video game (analog)
- Developed by Willy Higinbotham for an exhibition at the Brookhaven National Laboratories
- He was a very serious man who built electronics for the first atomic bomb
- The people in the neighborhood didn't liked the research lab for the nuclear stuff
- He decided to show the power of analog computers with a game on an oscilloscop



Willy Higinbotham

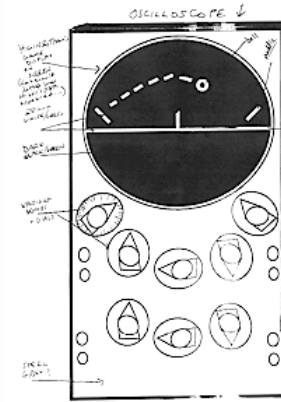


Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>, <http://www.heise.de/tp/deutsch/special/spiel/9043/1.html>
<http://www.bnl.gov/bnlweb/history/higinbotham.asp>

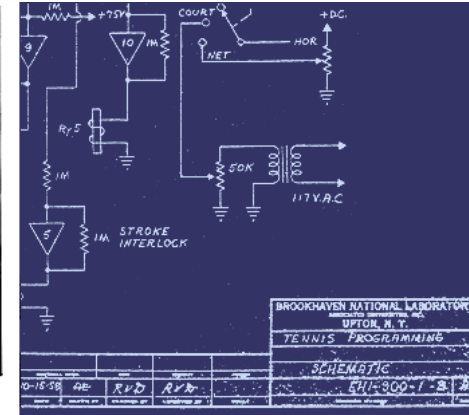
Game History

❑ *Tennis For Two* (1958)

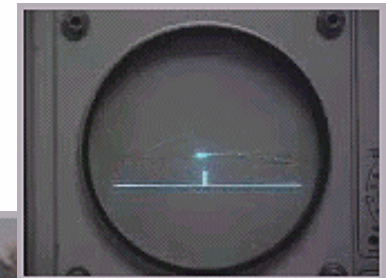
- The computer was not very powerful
- Therefore a tennis game for two players
- 1 horizontal & 3 vertical lines
- 1 spot (ball) on a 12cm screen
- Two boxes with a dial and a button
- The dials affected the angle of the ball trajectory
- The buttons hit the ball back to the other side (or into the net ...)
- It was a major success, people waited for hours in the line to play
- It was improved for the next year, but Butingham didn't really liked it and did not made a patent on it



A sketch of the display that would have been on the oscilloscope screen.



A section of the blueprint of the original tennis game designed in 1958 by Higinbotham.



Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>, <http://www.heise.de/tp/deutsch/special/spiel/9043/1.html>
<http://www.bnl.gov/bnlweb/history/higinbotham.asp>

Game History

❑ Tennis

- Sega PlayStation2 Sports Tennis (2002)
 - Characters based on real tennis players
 - Audience simulated by agents
 - Augmented virtuality (commercial banner ads)



Source: http://www.gametrailers.com/gt_vault/t_sega_tennis.html

History of Games

❑ SpaceWar!

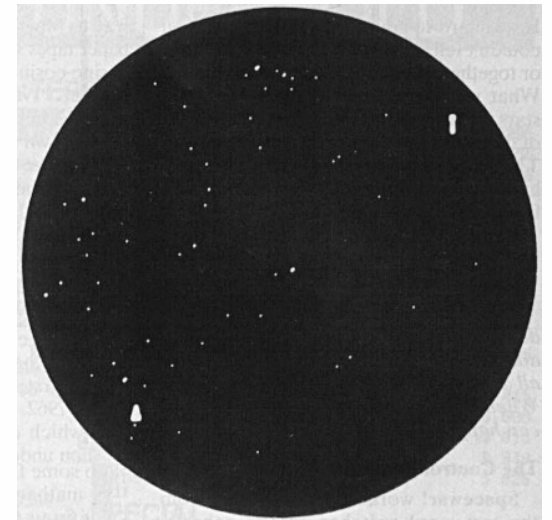


Image Source: <http://www.thepocket.com/page7feb01.htm>

Game History

❑ *SpaceWar!* (1962)

- The first digital video computer game
- Written by Stephen Russel, Wayne Witanen and J. Martin Graetz
- Influenced by the science fiction stories of E.E. „Doc“ Smith
- Developed to show the new functions of a PDP-1 (DEC) minicomputer
- One of the first with a cathode-ray tube display
- Two-player game (due to multi-tasking OS)
- Spaceship could be maneuvered and missiles fired avoiding sun gravitation

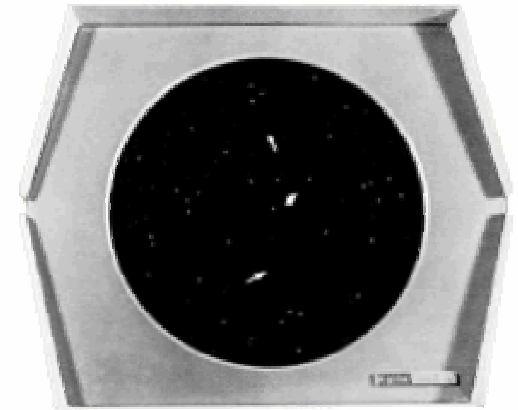


Source: <http://inventors.about.com/gi/dynamic/offsite.htm?site=http://www.wheels.org/spacewar/creative/SpacewarOrigin.html>

Game History

❑ *SpaceWar!* (1962)

- As with Higinbotham, Russel did not patented the game (why, if the system is big as a reffridgerator and costs US \$120.000,-)
- SpaceWar! was a big success, used by DEC as marketing for their machines and influenced many further computer games
- The original game converted to JAVA is available at:
<http://lcs.www.media.mit.edu/groups/el/projects/spacewar/readme.html>



Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>

Game History

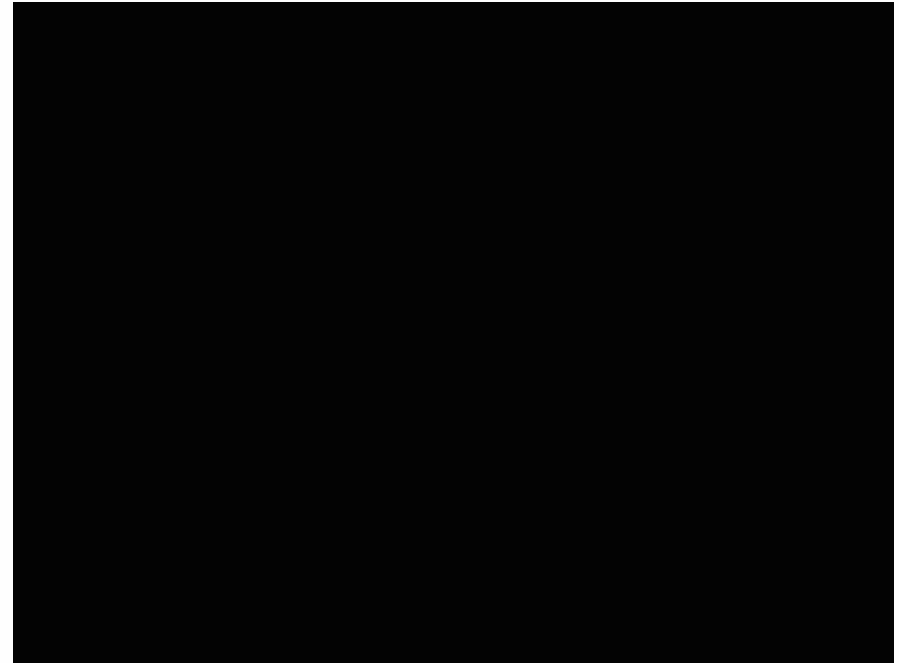
- ❑ Atari *Star Wars* (1982)
 - Vector Graphic Console Games
 - One of the first games with speech output



Source: <http://www.arcadeflyers.com/index.php?page=flyerdb&subpage=thumbs&id=1076>
http://www.system16.com/atari/hrdw_vector.html, Sounds: <http://www.gamearchive.com/>

Game History

- ❑ Star Wars is still a topic today
 - Lucas Arts *Star Wars Battlefront* (2004)

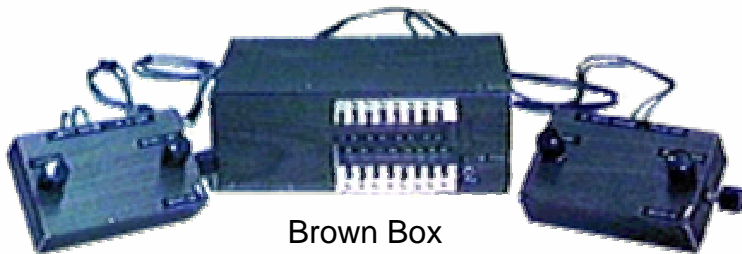


Source: http://www.gamershell.com/hellzone_Action_Star_Wars_Battlefront.shtml

Game History

❑ Games on TV

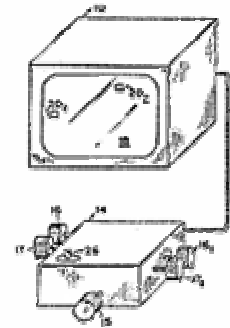
- Ralph Bear (born 1922, Germany)
- In 1966 he thought about using a TV as a computer game display
- Developed the Brown Box (1967)
- Contained a Joystick, changeable cartridges for different games (ping pont, volley-ball, football) and a light gun for gun games
- Transparent colored overlays were used as variable backgrounds



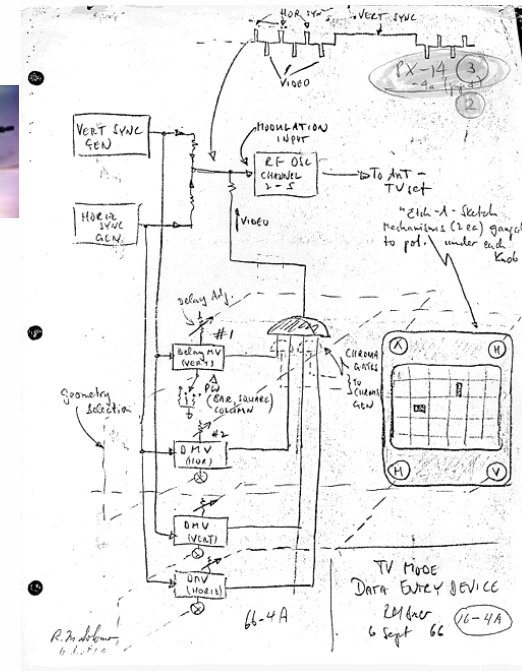
Brown Box



Bear at the Game Expo 2000



Ralph Bear
(1972)

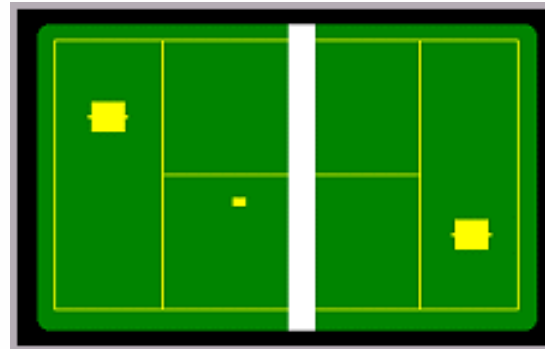
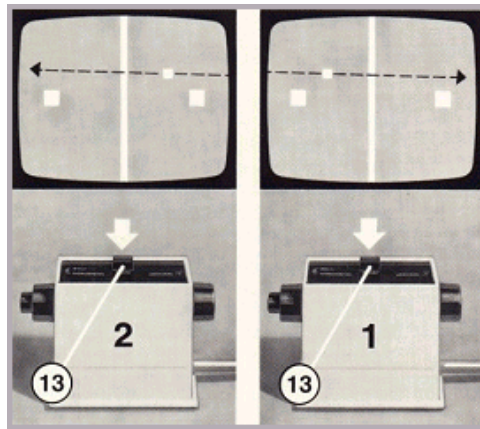


Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>, <http://www.ralphbaer.com/>

Game History

❑ Games on TV

- Magnavox ODYSSEY (1971)
- Magnavox signed an exclusive License Agreement with Bear for the Brown Box and produced a commercial product: ODYSSEY
- 12 different plug-in boards for different games
- Advertisement with Frank Sinatra in 1972 boosted sales for up to 100.000 units!



ODYSSEY Tennis

The original Odyssey system offered twelve different games, each with a printed circuit card. Six of those cards are shown in the foreground here.



Optional ODYSSEY Shooting Gallery

... offers you an exciting new dimension in the enjoyment of your ODYSSEY. The SHOOTING GALLERY, model 17L950, includes an ELECTRONIC RIFLE, two Printed Circuit Game Cards and a different Target! Overlays in two sizes. The total unit offers 5 variations for creating your own home shooting gallery. **\$24.95**

SHOOTOUT SHOOTING GALLERY PREHISTORIC SAFARI BOGFIGHT

Other Optional ODYSSEY Games...

are available today... and at a very modest price—only \$5.95 each! Once you've tried ODYSSEY, you'll want to have every exciting game of yours. Here are additional games that will bring you and your family great fun and hours of entertainment. Complete instructions, as well as game aids are included with each.

Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>, <http://www.ralphbaer.com/>

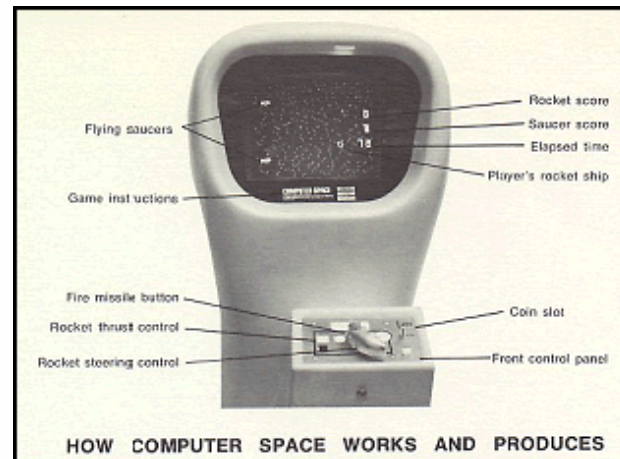
Game History

❑ Nolan Bushnell – **Computer Space** (1971)

- Bushnell studied at the University of Utah
- He played Russell's Spacewar on the PDP-1 (one of three Universities in the US that can afford the computer monitor)
- He also worked in a Salt Lake City amusement park
- His idea: create a reasonably compact version of space war! for arcade halls
- 8 years later he released **Computer Space** (the first coin operated video game)
- The cabinet was made of fiber glass



Nolan Bushnell

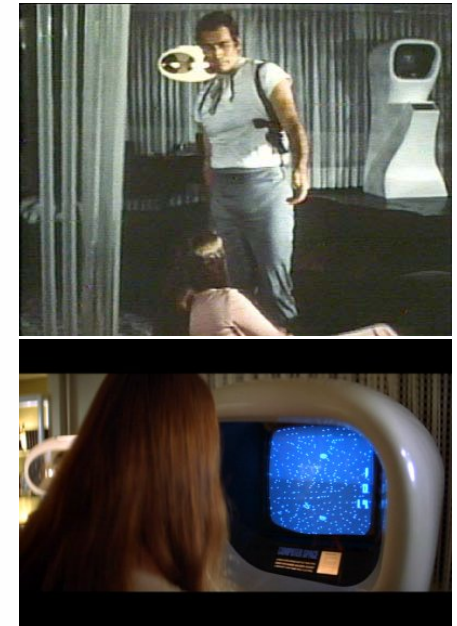
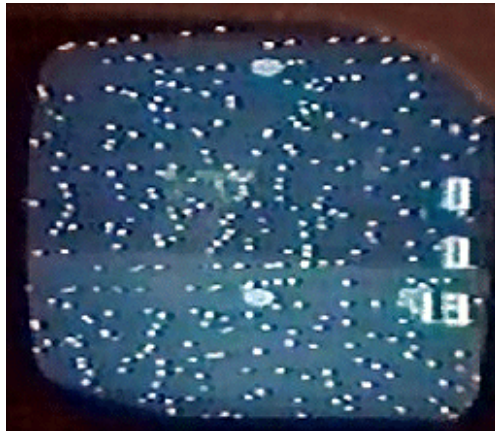


Source: <http://www.emuunlim.com/doteaters/play1sta1.htm>

Game History

❑ Nolan Bushnell – *Computer Space* (1971)

- Computer Space was great for science fiction movies and computer freaks at the universities, but too complex for the drunken beer bar visitors
- It was quite unsuccessful
- Bushnell searched for a simpler game ...



Scenes from the movie
Soylent Green (CED)

Source: http://www.2001exhibit.org/arts/soylent_green2.html, <http://www.chud.com/chudvd/reviews/soylent.php3>
<http://users2.ev1.net/~curtishart/badger/history.html>

Game History

❑ Atari Inc. – *Pong* (1972)

- Bushnell visited an exhibition of the ODYSSEY and created PONG
- He also founded Atari Inc. (which is a special term in the GO game)
- PONG is the first real succesful digital computer game ever ...
- Many versions have been produced
- Magnavox raised a lawsuit against Atari for copyright violation and got 700.000 US\$ (and another 100 Million US\$ from others ...)



Source: <http://www.pong-story.com/>



PONG Home System



The Atari Logo
shows Mount Fujiyama



PONG
ARCADE Console

Game History

- ❑ PONG influenced the game and art scene for decades



<http://centerclick.org:81/videos/archive/commercials/>
<http://www.infogrames.com/>
<http://oska.com/>



www.blinkenlights.com
(2002)

Game History

- ❑ PONG was also the start for the arcade industry in Japan
 - Playing for money is illegal in Japan
 - So they invented smart voucher systems
 - Pachinko as a kind of pinball system is the most often played game for people of all ages



Pachinko Gambling Hall in Tokyo

Source: <http://www.thejapanfaq.com/pics.html>

Game History

❑ **PUCK-MAN, PAC-MAN** (Namco, 1980)

- Most games before the 80s were inspired from sports & science fiction
- Toru Iwatami (Namco, Japan) wanted to build a non-violant game
- He was inspired by a pizza which he turned into a hungry character
- Midway for the US market changed the name from PUCK-MAN to PAC-MAN to avoid randals altering the letters to something else ...



Source: <http://www.emuunlim.com/doteaters/play2sta4.htm>, <http://www.mamehot.net/rom-archive/cabinet/puckman.png>,
<http://emulazione.multiplayer.it/stgraveyard/Articles/Pac-Man/ToruEatsPizza.jpg>, <http://retrogamer.merseyworld.com/iwatani.htm>

Game History

❑ PAC-MAN

- PAC-MAN is the first video game ever featuring
 - a real character (all figures had names)
 - toys, lunchboxes, cereals, popular songs and a TV show
 - PAC-MAN was the first electronic game superstar
- It definitely influenced the creation of later 'stars' like Mario, Donkey Kong, Lara Croft etc.
- A female version (Ms. PAC-MAN) was developed 1982 by Midway
- It was the best selling arcade game in the U.S. History (115.000 units)



Source: http://www.arcadedepot.com/HTML/cabinets_mspacman.html

7 Up commercial ad

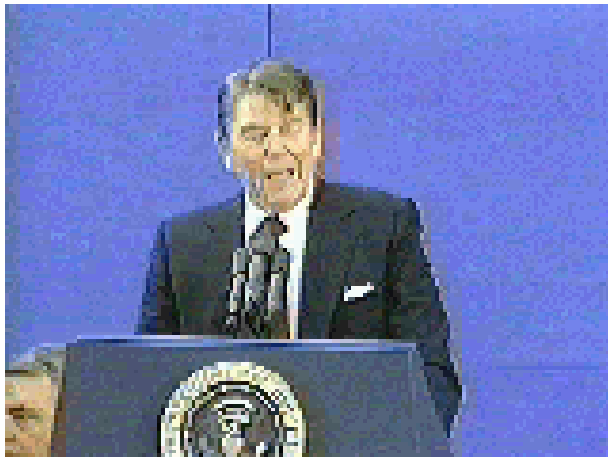
Game History

❑ PAC-MAN

- Still new versions or adoptions are developed, e.g.
- PAC-MAN VR (Virtuality Inc. 1996)
- PAC-MAN World (Namco, 1999)
- PAC-MAN World 2 (Namco, PS2, 2003)
- PAC-MAN for Nintendo Gamecube (Namco, 2003)



PAC MAN World 2



Ronald Reagan about PAC MAN



PAC MAN Gamecube

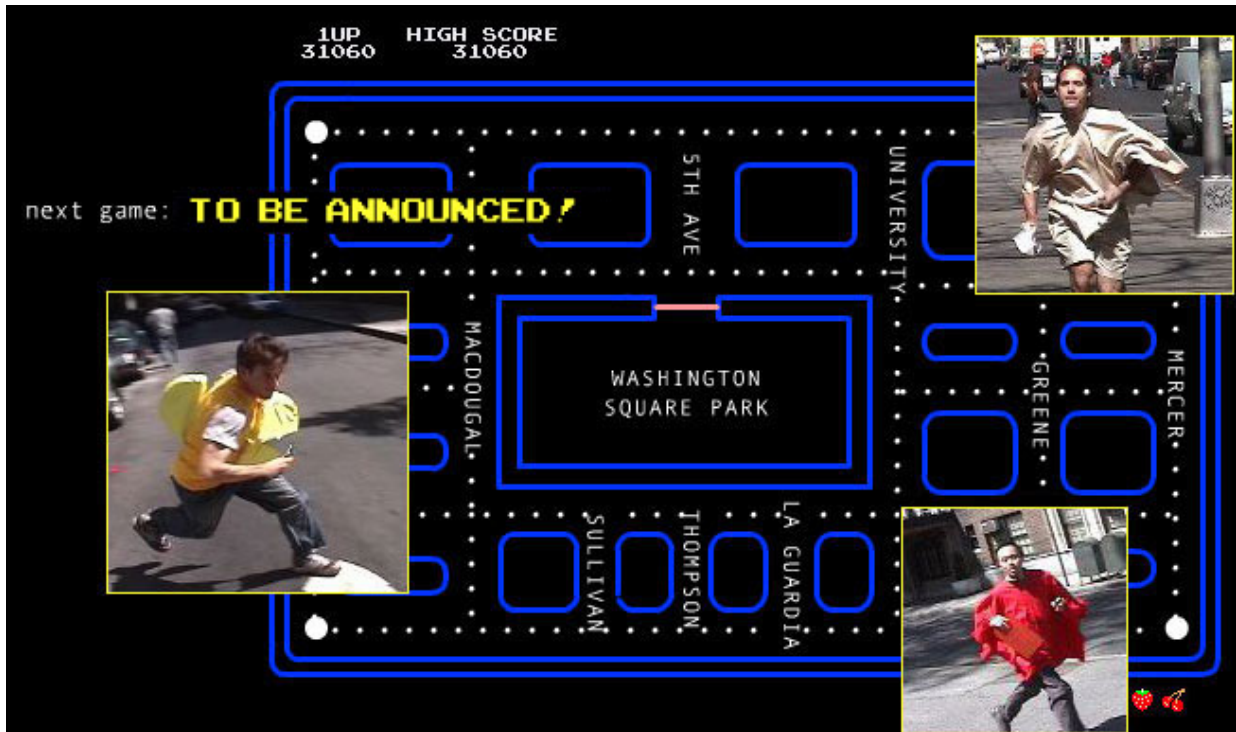


Source: <http://www.nintendo.com/gamemini?gameid=m-Game-0000-1844>, <http://www.reagan.com/ronald/video.shtml>,
<http://bestcovers.tgnetwk.com/p.htm>

Game History

❑ **PAC-MANHATTAN**

- Pervasive Game with real persons in Manhattan
- www.pacmanhattan.com



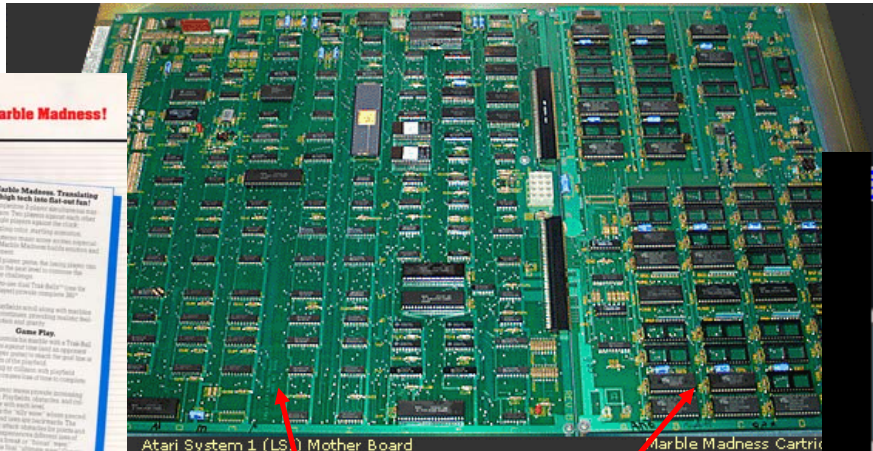
Pacmanhattan (Afro House)

Source: <http://www.excal.cz/excalsite/hv14.html>

Game History

❑ Marble Madness (1984 – Atari)

- My personal favourite ... on Commodore Amiga ...
- One of the first with 3D graphics
- A nice story can be found at <http://www.bodenstaendig.de/marble/index.htm>



Atari System 1
Circuit Board

Marble Madness
Cartridge



Source: http://www.system16.com/atari/hrdw_system1.html

Game History

❑ Racing Games

- Atari: Night Driver (1976)
- Developed by Rob Fulop (University of Berkeley)
- The first first-person shooter and the first sit-down game



Source: <http://www.geocities.com/arcadeclassics.geo/NIGHTDRIVER.html>

Game History

❑ Racing Games

- Codemasters: Colin McRae Rally 04 (2004)



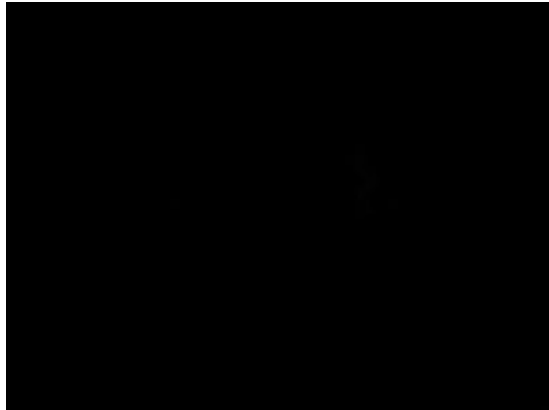
04
colin mcrae rally

Source: www.codemasters.com

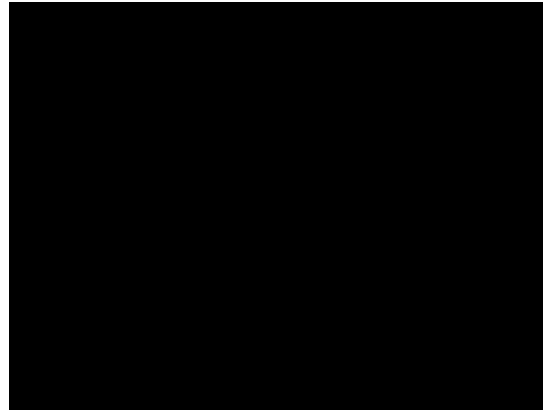
Game History

- ❑ Sport Simulations are still very popular and succesful

All Star Baseball 2005
(Acclaim)



Showdown Legends
of Wrestling
(Acclaim)



UEFA EURO 2004
(EA Sports)



Tiger Woods
PGA Tour 2004
(EA Sports)

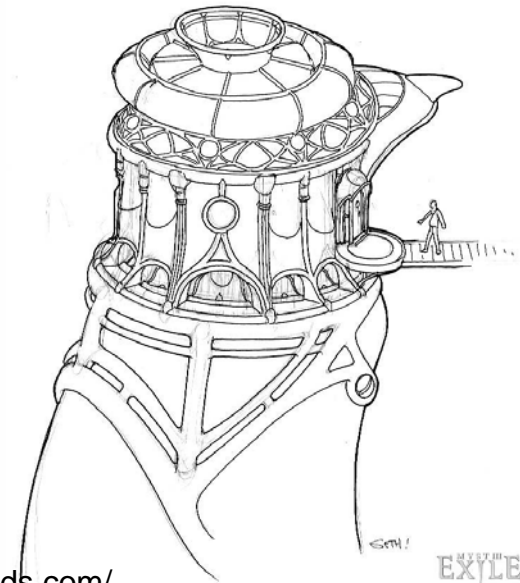


Source: <http://www.gametrailers.com/>

Game History

❑ Other typical genre: Adventures

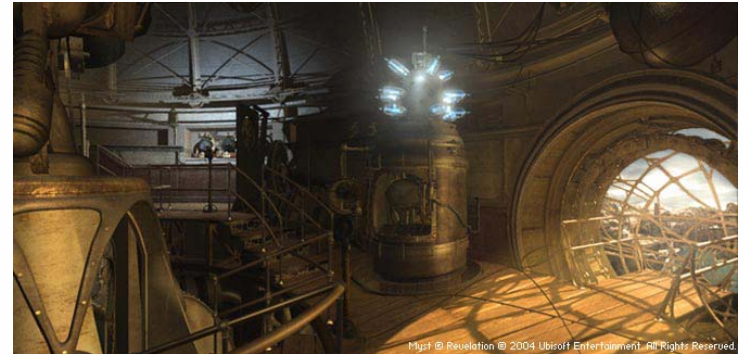
- Example: Myst, Myst II (Riven), Myst III (Exile), Uru
- Miller Brothers (Cyan Soft) started 1993
- Idea: Making an interactive book
- Outstanding rendering quality in 3D lookarounds
- Professional music tracks (symphonic orchestra)
- Integrated movie scenes (hollywood actors)
- One of the best selling games ever



Source: <http://www.myst.com>, <http://www.myst3.com>, <http://uru.ubi.com/us/>, <http://www.cyanworlds.com/>

Game History

- ❑ Myst 4 (Revelation) is coming Fall 2004 ...
 - Even more augmented virtuality
 - Music: Peter Gabriel



Source: <http://www.mystrevelation.com>, <http://mystobsession.com/?page=Movies>

Game History

❑ The *Neverhood*

- Dreamworks Interactive Games (1996)
- Completely made out of clay!
- Started in 1988 as an art work depicting a town
- Shown to Steven Spielberg, who was convinced to produce a game out of it.
- Clay puppets are modeled and the camera was moved frame by frame like a cartoon
- Not very succesful but defined a new genre

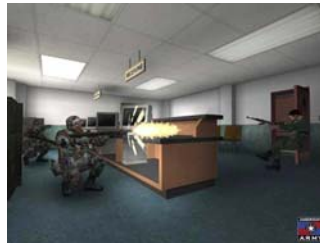


Source: <http://www.dreamworksgames.com/Games/Neverhood>

Game History

❑ Political War Games

- Published by US Army: ***America's Army: Operations***
 - Players can train military action (eliminating terrorists in Iraq and Afghanistan) and can link to the army recruiting office
 - 1.5 million registered users, 35.000 daily players



- Published by Israel Army: ***Israeli Airforce***
 - Player is pilot in israelic war plane (either in 1967 war or Libanon 1982)
 - Options, like ,carpet bombin over Beirut'
 - Got high ratings of realistic visualization of israel military operations



Source: <http://www.heise.de/tp/deutsch/special/game/15669/1.html>

Images: <http://www.totalfree.at/covers/Games/GrafikS/israeli%20air%20force%20%20f.jpg>

http://www.freenet.de/freenet/computer/software/spiele/americas_army/01.html

Game History

❑ Political War Games

- Hisbolla published **Special Force** (February 2003)
 - Bilal Zein from the Internet Office of Hisbollah says they wanted to set something against the dominance of pro-western games
 - Instead of anonymous enemies, the player has to train shooting on pictures of israelic prime minister Ariel Scharon und Ex-prime minister Barak
 - Afterwards, israelic soldiers have to be killed in the Bekaa valley based in real events during the israelic invention 1982 in south libanon



Source: <http://www.heise.de/tp/deutsch/special/game/15669/1.html>, <http://www.specialforce.net/>

Game History

□ Trends:

- Cross-marketing of films, books, accessories and games
- Example: Van Helsing (Sierra Games)
- Blockbuster Movie of Universal Studios (May 2004)
- Others: SpiderMan, Shrek, Harry Potter, Jurassic Park and many more
- Sometimes movies are made after game (e.g. Laura Croft)



Source: <http://www.vanhelsingmovie.com/>, <http://www.vanhelsinggame.com/us/>

Game History

❑ Dedicated Hardware allows for much better graphics

- Example: Nintendo Game Cube (since Xmas 2001)

- 485MHz IBM Processor, 162MHz Graphic Chip

- Pikmin – Game by Myamoto (2004)

- To save the company he works for from bankruptcy, Olimar and his new assistant, Louie, must salvage treasure buried all over the planet. Of course, they'll need the help of the Pikmin.



Source: <http://www.nintendo.com/gamemini?gameid=m-Game-0000-1727>

Game History

□ Links

- The Arcade Museum
 - <http://www.system16.com/>
- Arcade Flyer Collection
 - <http://www.arcadeflyers.com/>
- Traditional Games
 - <http://www.tradgames.org.uk>
- Ancient Board Games
 - <http://nabataea.net/games3.html>
- Game Research
 - <http://www.game-research.com/>

So let's play !!!



Source: <http://caal.jmu.edu/Masterpiece/images/Nun.jpg>