

# History of Computer Art

URL: [http://iasl.uni-muenchen.de/links/GCA\\_Indexe.html](http://iasl.uni-muenchen.de/links/GCA_Indexe.html)

## **Part X: Computer and Video Games**

Seminar, 28<sup>nd</sup> April 2014

Danube University Krems

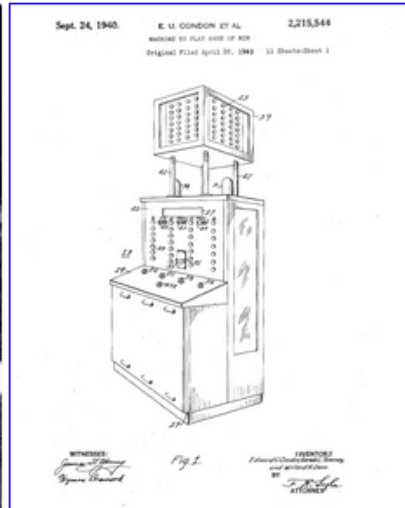
Department for Arts and Image Science

MediaArHistories: Masters of Art

Thomas Dreher

URL: <http://dreher.netzliteratur.net>

# Early Computer Games (I)



Left and Middle: Condon, Edward U./Derr, Willard A./Gereld L. Tawney: Nimatron, 1940.

Left: Realisation by the Westinghouse Electric & Manufacturing Company, spring 1940, New York World's Fair (source: The American Mathematical Monthly. Vol 49. January 1942, p.42ss.)

Image source: URL: <http://www.goodeveca.net/nimrod/nimatron.html>

Middle: Illustration of U.S. Patent 2,215,544.

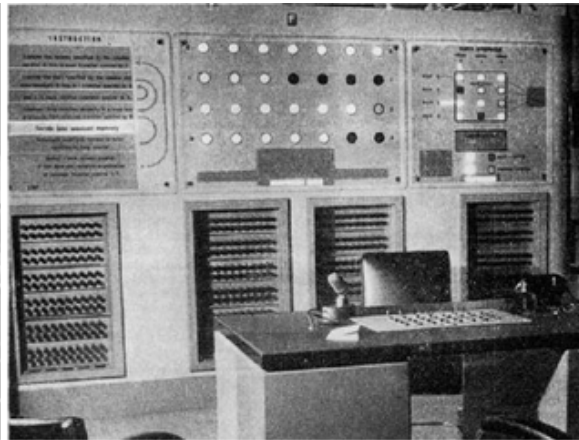
Image source: URL: [http://www.1939nyworldsfair.com/ftp/MACHINE\\_TO\\_PLAY\\_GAME\\_OF\\_NIM.pdf](http://www.1939nyworldsfair.com/ftp/MACHINE_TO_PLAY_GAME_OF_NIM.pdf)



Right: Redheffer, Raymond: Nim, box realised in using blue plexiglass, signed with "Raymond Redheffer MIT" (film by Mike Mozart, including some not quite correct informations according to the current level of knowledge).

Image source: URL: <https://www.youtube.com/watch?v=2NWnmvMOqS0>

# Early Computer Games (II)



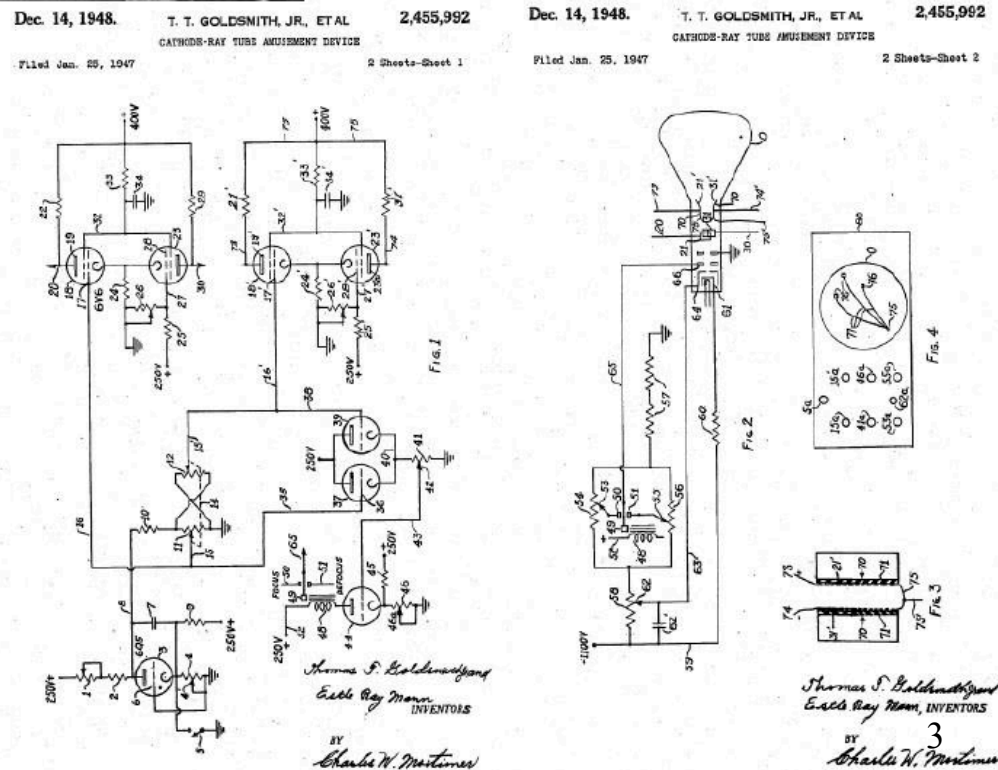
Right, bottom: Goldsmith Jr., Thomas T./Grove, Cedar/Mann, Estle Ray: Cathode Ray Tube Amusement Device. U.S. Patent #2,455,992. 1948, Sheets 1 and 2, fig.1 - 4.

Image source: URL: <http://www.pong-story.com/2455992.pdf>

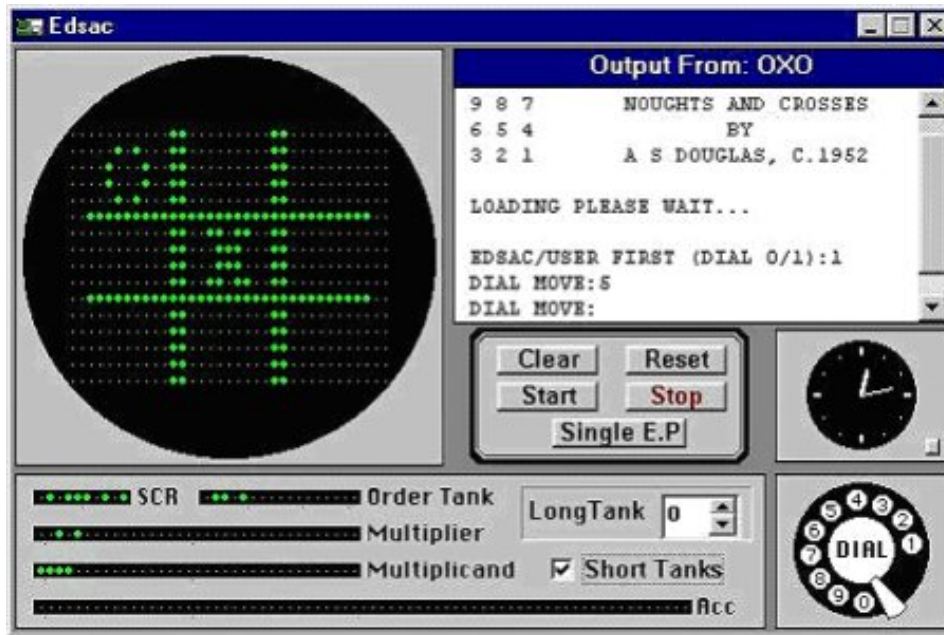
Left and Middle: Bennett, John/Stuart-Williams, Raymond: Ferranti Nimrod, 1951.

Left, top and bottom: Industrial Exhibition, fair grounds, Charlottenburg/Berlin, opening day 6th October 1951, Federal Minister of Economic Affairs Ludwig Erhard (left bottom, at the centre) plays against Nimrod and loses three times (Borchers: Jahre 2001. Source of the images: Heinz Nixdorf MuseumsForum, Paderborn. URL: <http://www.heise.de/newsticker/meldung/Vor-50-Jahren-fing-alles-an-das-erste-Elektronenhirn-in-Deutschland-51722.html>).

Middle: Exhibition of Science, Science Museum, South Kensington/London, Part of the Festival of Great Britain, London 1951. Image source: URL: <http://goodeveca.net/nimrod/>



## Early Computer Games (III)



Left: Douglas, Alexander S.: Tic Tac Toe, 1949, game for the Mainframe Computer EDSAC (illustration: Tic Tac Toe in the EDSAC emulator). Image source: URL: <http://img.index.hu/cikkepek/0506/tech//oxo.jpg>



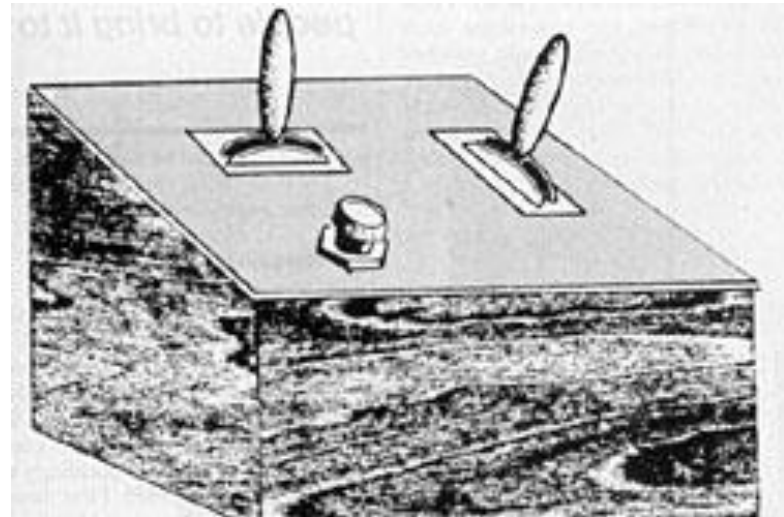
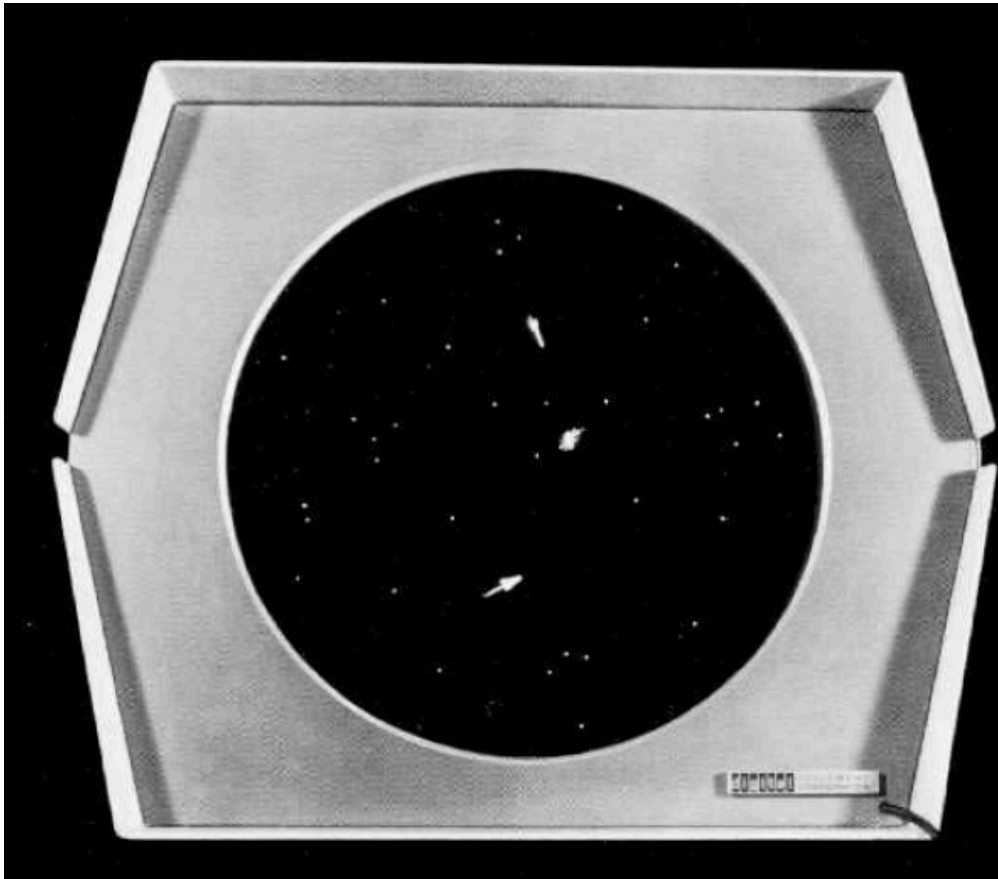
Right, top and bottom: Higinbotham, William: Tennis for Two, 1958, Systron Donner Analog Computer, Germanium transistors, oscillograph (diameter: 5 inches), 2 boxes with turning knobs and press keys. Exhibited at the visitor's day of the Instrumentation Division at the Brookhaven National Laboratory, U.S. Department of Energy, Upton/Long Island ("Tennis for Two" is presented enlarged in the wider circle. Image source: Brookhaven National Laboratory).



Image sources: Right, top: URL: [http://www.msnbc.msn.com/id/27328345#.UHa\\_rY56STs](http://www.msnbc.msn.com/id/27328345#.UHa_rY56STs)  
Right, bottom: URL: <https://www.youtube.com/watch?v=s2E9iSQfGdg>



## Early Computer Games (IV)



Left and right: Edwards, Dan/Graetz, Martin J./Kotok, Alan/Russell, Stephen R./Sampson, Peter/Wytanen, Wayne: Spacewar!, 1962, computer game for the minicomputer PDP-1, screen with two spaceships.

Left: Monitor.

Image source: URL: <http://medienwissenschaft.uni-bayreuth.de/assets/Uploads/Koubek/forschung/KoubekSpielegeschichte.pdf>

Right: console.

Image source: URL: <http://spacewar.zorg.org/origins-of-spacewar.php>

# Arcade Games and Consoles (I)



Bushnell, Nolan: Computer Space, Nutting Associates, 1971, arcade game.

Left: the case. Image source: URL: [http://en.wikipedia.org/wiki/File:Nutting\\_ComputerSpace-Blue.JPG](http://en.wikipedia.org/wiki/File:Nutting_ComputerSpace-Blue.JPG)

Right: the screen. Image source: [http://en.wikipedia.org/wiki/File:Nutting\\_ComputerSpace-Blue-Screen.JPG](http://en.wikipedia.org/wiki/File:Nutting_ComputerSpace-Blue-Screen.JPG)

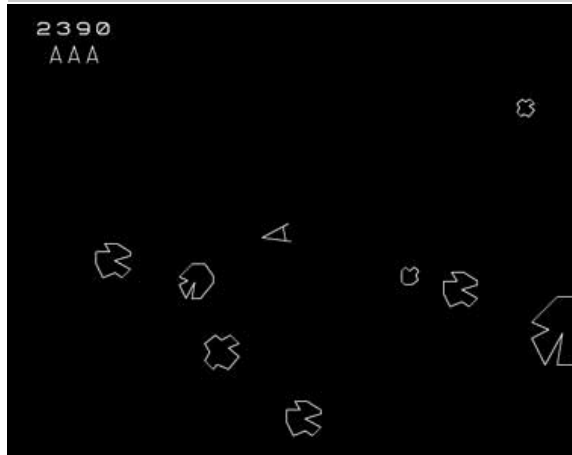


Baer, Ralph: Tennis, one of the twelve games included in the Odyssey Home Entertainment System, Magnavox, 1972. Players with the console being connected to the TV. Image source: <http://www.pong-mythos.net/index.php?lg=de&main=Odyssey-1972-&site=01:01:02>

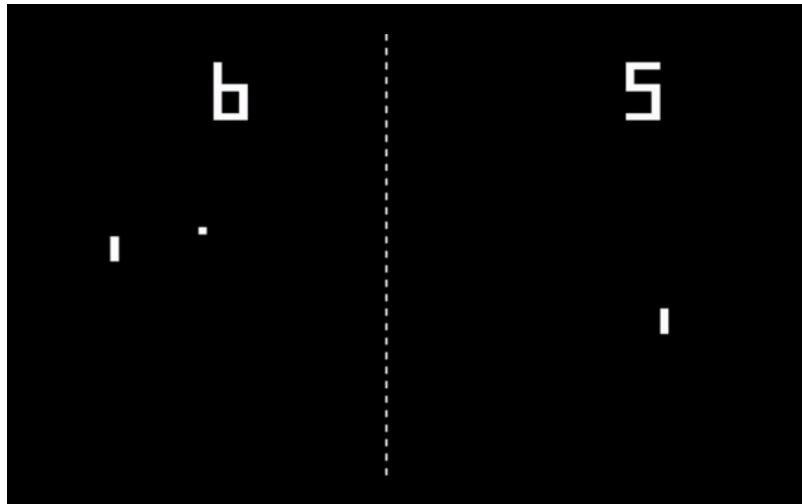


Nishikado, Tomohiro: Space Invaders, Taito, 1979, arcade game. Image source: URL: <https://www.youtube.com/watch?v=QObneYZIdKI>

# Arcade Games and Consoles (II)



Top, Left and middle: Rains, Lyle/Logg, Ed: Asteroids, Atari, 1979, arcade game. Image source: URL: <http://www.retroland.com/asteroids/#.U2f0B2tsHc0>

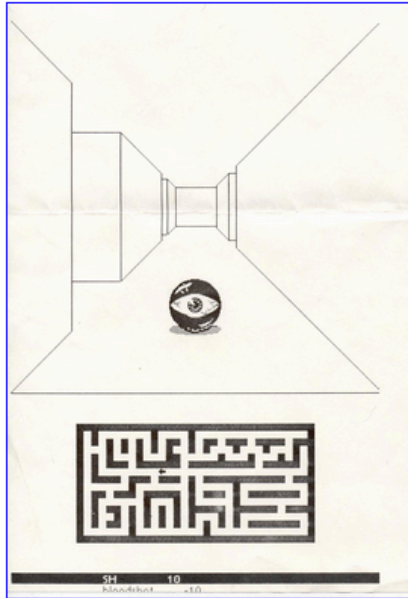


Top, right: Alcorn, Allan/Brown, Bob/Lee, Harold: Home Pong, Atari, 1975, game console.

Image source: URL: [http://www.pong-mythos.net/index.php?lg=de&main=Atari\\_Home\\_Pong&site=01:01:04](http://www.pong-mythos.net/index.php?lg=de&main=Atari_Home_Pong&site=01:01:04)

Alcorn, Allan: Pong, Atari. Bottom, left and middle: arcade game, 1972. Image sources: left: screenshot, URL: [https://www.youtube.com/watch?v=3nu\\_L8uEzJw#t=221](https://www.youtube.com/watch?v=3nu_L8uEzJw#t=221); middle: by ProhibitOnions, URL: <http://de.wikipedia.org/w/index.php?title=Datei:PongVideoGameCabinet.jpg&filetimestamp=20120317213251>

# Ego Shooter (I)



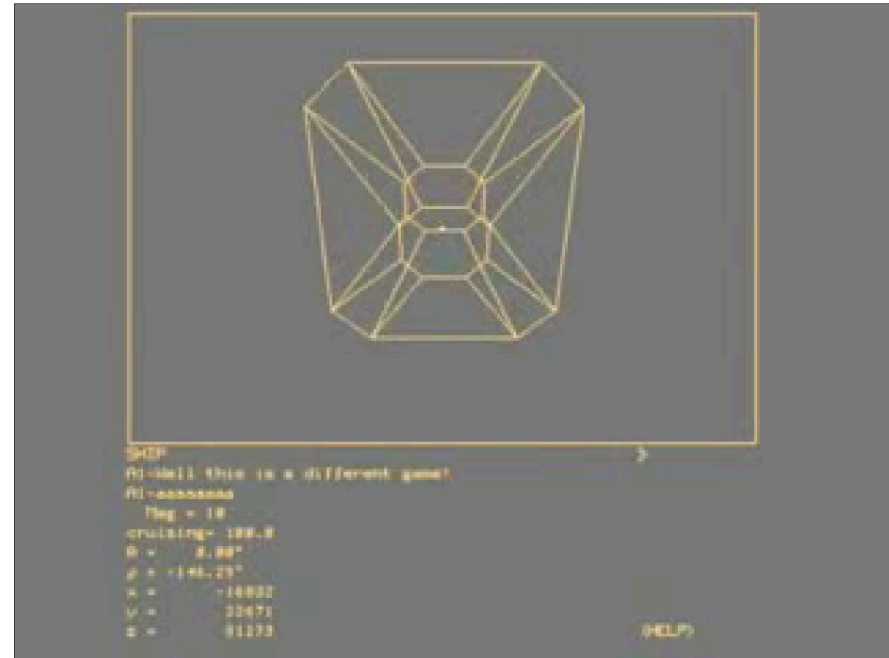
Colley, Steve/Palmer, Howard/Thompson, Greg: Maze War, 1973-74, game for the minicomputer Imlac PDS-1.

Left: printout of a screenshot (from an implementation on the personal computer Xerox Star 8010), 1985-86.

Image source: URL: <http://www.digibarn.com/collections/games/xerox-maze-war/maze-war.jpg>

Right: child playing Maze War on an Imlac PDS-1, 30th Maze War Anniversary Event, DigiBarn Computer Museum, Mountain View/California 6th-7th November 2004.

Image source: URL: <http://www.digibarn.com/history/04-VCF7-MazeWar/imlac-maze-kids/DSC00804.JPG>

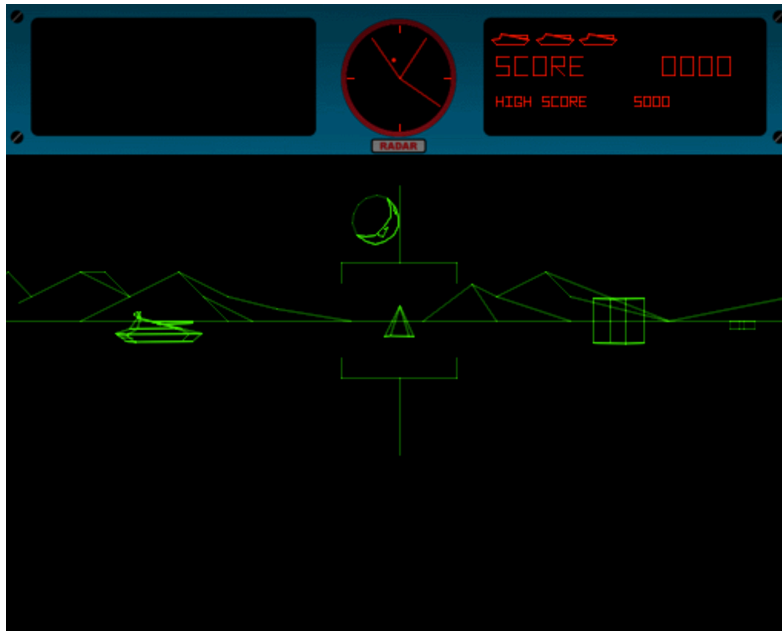


Bowery, James Allan: Spasim, 1973-74, multiplayer online game for the PLATO (Programmed Logic for Automated Teaching Operations) system.

Screenshot from: URL: <https://www.youtube.com/watch?v=nMZv5Akcum8>



## Ego Shooter (II)



Rotberg, Ed/Hoff, Morgan: Battlezone, Atari, 1980, arcade game. Screenshot from URL: <http://www.atari.com/play/atari/battlezone>



Kellner, Charlie/Seleme, Lance: The Eidolon, Lucasfilm Games/Epyx, 1985, computer game. Image source: URL: <http://www.mobygames.com/game/atari-8-bit/eidolon/screenshots/gameShotId,150348/>



## Ego Shooter (III)

Right: Xanth Software F/X: Midi Maze, Hybrid Arts, 1987, computer game.

Screenshot from URL: <https://www.youtube.com/watch?v=29sTZedLcWk>



Left: id Software (Romero, John/Carmack, John/Hall, Tom): Wolfenstein 3D, Apogee Games, 1992, computer game.

Image source: URL: [http://books.google.co.uk/books?id=SYEzMiBe57kC&pg=PT74&dq=IE+2009+Proceedings+Australasian+Conference+Interactive+Entertainment&hl=de&sa=X&ei=oKJoU5\\_WLYmgyQPaqoGQDg&ved=0CC0Q6AEwAA#v=onepage&q=IE%202009%20Proceedings%20Australasian%20Conference%20Interactive%20Entertainment&f=false](http://books.google.co.uk/books?id=SYEzMiBe57kC&pg=PT74&dq=IE+2009+Proceedings+Australasian+Conference+Interactive+Entertainment&hl=de&sa=X&ei=oKJoU5_WLYmgyQPaqoGQDg&ved=0CC0Q6AEwAA#v=onepage&q=IE%202009%20Proceedings%20Australasian%20Conference%20Interactive%20Entertainment&f=false)

## Ego Shooter (IV)



id Software (Romero, John/Carmack, John/Hall, Tom): Doom, Cdv Software Entertainment, Pearl Agency, 1993, computer game. Image source: URL: <http://www.mobygames.com/game/dos/doom/screenshots/gameShotId,369142/>



Montgomery, Robert: Lady in the Lake, 1947, movie. Screenshot from URL: <http://www.youtube.com/watch?v04AKDw2wi5I>

# Strategy Games/God Games (I)

## SAMPLE PRINTOUT FOR SUMERIAN GAME

Hello! Before we begin, will you please type your name, first name first, then your last name, and then press the Return key.

Ed Smith

Now, Ed, you are ready to operate the Sumerian Economic Model.

Imagine that you have just been made Ruler of Lagash, a City-State of Sumer, in the year 3500 B.C. Twice yearly your Royal Steward, Urbaba, will report to you the economic condition of the kingdom. Guided by these reports, you will decide the use of your grain and other resources, trying to keep your population stable and well fed. Between reports, your court advisor will come to you with news of your kingdom.

The Steward will use the typewriter to report and ask for your decisions. When the "Proceed" light comes on, type your answer in figures and press "Return." (If you make a mistake, press "Cancel" instead and try again.) Good luck!

Initial Economic Report made to the New Ruler of Lagash by his Humble Steward:

Total population now	500
Total farm land under cultivation, acres	600
Total grain in inventory, bushels	900
one season old	900
two seasons old	0
three seasons old	0
Total grain just harvested, bushels	13000
Total resources, harvest + inventory	13900

You must now decide how to use your resources.

How many bushels of grain do you wish to FEED your people?  
4000

How many bushels of grain do you want PLANTED for the next crop?  
9000

This means that zero bushels must be removed from storage. Is this all right?  
Do you wish to 1 — let your decisions stand or 2 — revise them?

Resulting inventory 900

The steward will execute the royal commands and return in 6 months.

Sir, I am sorry to report that 225 bushels of grain have rotted or been eaten by rats this past season.

Economic Report of the Ruler's Steward for the SPRING Season in the year 1 of Luduga 1.

Population at previous report	500
Change in Population	—55
Total population now	445
The quantity of food the people received last season was far too little.	
Harvest last season	13000
Harvest this season	14396
Previous inventory	900
Change in inventory	—225
Present inventory	675
Total resources, harvest + inventory	15071

You must now decide how to use your resources.

How many bushels of grain do you wish to FEED your people?  
5000

How many bushels of grain do you want PLANTED for the next crop?  
9000

This means that 396 bushels must be placed in storage. Is this all right?  
Do you wish to 1 — let your decisions stand or 2 — revise them?

Left: Center for Educational Services and Research of the Board of Educational Services (BOCES)/ William McKay (IBM): The Sumerian Game 1962-64, computer game for a timesharing system (Wing: Economics 1966, p.33).

HAMURABI  
CREATIVE COMPUTING NORRISTOWN, NEW JERSEY

TRY YOUR HAND AT GOVERNING ANCIENT SUMERIA FOR A TEN-YEAR TERM OF OFFICE.

HAMURABI: I BEG TO REPORT TO YOU,  
IN YEAR 1, 0 PEOPLE STARVED, 5 CAME TO THE CITY,  
POPULATION IS NOW 100  
THE CITY NOW OWNS 1000 ACRES.  
YOU HARVESTED 3 BUSHEL PER ACRE.  
RATS ATE 200 BUSHEL.  
YOU NOW HAVE 2800 BUSHEL IN STORE.

LAND IS TRADING AT 24 BUSHEL PER ACRE.  
HOW MANY ACRES DO YOU WISH TO BUY? 10

HOW MANY BUSHEL DO YOU WISH TO FEED YOUR PEOPLE? 2000

HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 990

HAMURABI: I BEG TO REPORT TO YOU,  
IN YEAR 2, 0 PEOPLE STARVED, 5 CAME TO THE CITY,  
POPULATION IS NOW 105  
THE CITY NOW OWNS 1010 ACRES.  
YOU HARVESTED 3 BUSHEL PER ACRE.  
RATS ATE 16 BUSHEL.  
YOU NOW HAVE 3019 BUSHEL IN STORE.

LAND IS TRADING AT 21 BUSHEL PER ACRE.  
HOW MANY ACRES DO YOU WISH TO BUY? 25

HOW MANY BUSHEL DO YOU WISH TO FEED YOUR PEOPLE? 2000

HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 1000

HAMURABI: THINK AGAIN. YOU HAVE ONLY  
494 BUSHEL OF GRAIN. NOW THEN,  
HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 500

HAMURABI: I BEG TO REPORT TO YOU,  
IN YEAR 3, 5 PEOPLE STARVED, 5 CAME TO THE CITY,  
A HORRIBLE PLAGUE STRUCK! HALF THE PEOPLE DIED.  
POPULATION IS NOW 52  
THE CITY NOW OWNS 1035 ACRES.  
YOU HARVESTED 1 BUSHEL PER ACRE.  
RATS ATE 0 BUSHEL.  
YOU NOW HAVE 744 BUSHEL IN STORE.

LAND IS TRADING AT 17 BUSHEL PER ACRE.  
HOW MANY ACRES DO YOU WISH TO BUY? 0  
HOW MANY ACRES DO YOU WISH TO SELL? 25

HOW MANY BUSHEL DO YOU WISH TO FEED YOUR PEOPLE? 1000

HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 500

HAMURABI: THINK AGAIN. YOU HAVE ONLY  
169 BUSHEL OF GRAIN. NOW THEN,  
HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 300

HAMURABI: I BEG TO REPORT TO YOU,  
IN YEAR 4, 2 PEOPLE STARVED, 12 CAME TO THE CITY,  
POPULATION IS NOW 62  
THE CITY NOW OWNS 1010 ACRES.  
YOU HARVESTED 1 BUSHEL PER ACRE.  
RATS ATE 0 BUSHEL.  
YOU NOW HAVE 319 BUSHEL IN STORE.

LAND IS TRADING AT 23 BUSHEL PER ACRE.  
HOW MANY ACRES DO YOU WISH TO BUY? 0  
HOW MANY ACRES DO YOU WISH TO SELL? 500

HOW MANY BUSHEL DO YOU WISH TO FEED YOUR PEOPLE? 500

HOW MANY ACRES DO YOU WISH TO PLANT WITH SEED? 230

YOU STARVED 37 PEOPLE IN ONE YEAR!!!  
DUE TO THIS EXTREME MISMANAGEMENT YOU HAVE NOT ONLY  
BEEN IMPEACHED AND THROWN OUT OF OFFICE BUT YOU HAVE  
ALSO BEEN DECLARED NATIONAL FINK!!!

SO LONG FOR NOW.

Right: Ahl, David H.: Hammurabi (Ahl: BASIC 1978, p.78).

## Strategy Games/God Games (II)



Daglow, Don: Utopia, Mattel Electronics, 1981, game for the console Mattel Intellivision (since 1980).

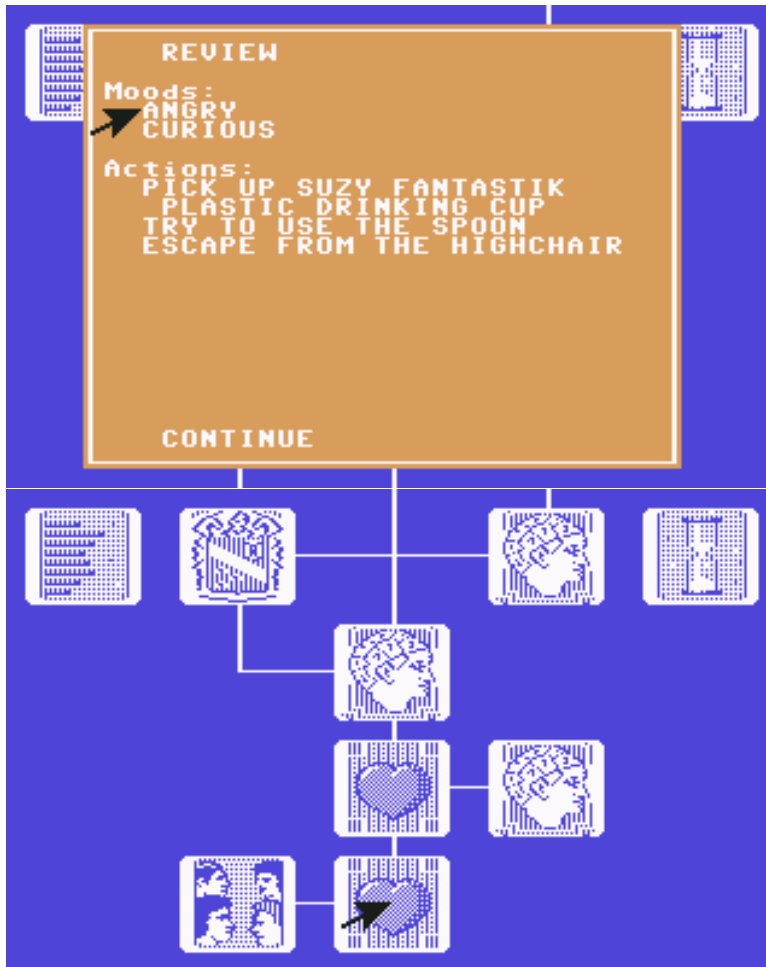
Screenshot from URL: <https://www.youtube.com/watch?v=DS6fMMDApIk>



Right, top and bottom: Crane, David/Gold, Rich: Little Computer People, Activision, 1985, computer game.  
Images from Apple II version, top: URL: <http://www.mobygames.com/game/apple2/little-computer-people/screenshots/gameShotId,191391/>; bottom: <http://www.mobygames.com/game/apple2/little-computer-people/screenshots/gameShotId,191390/>

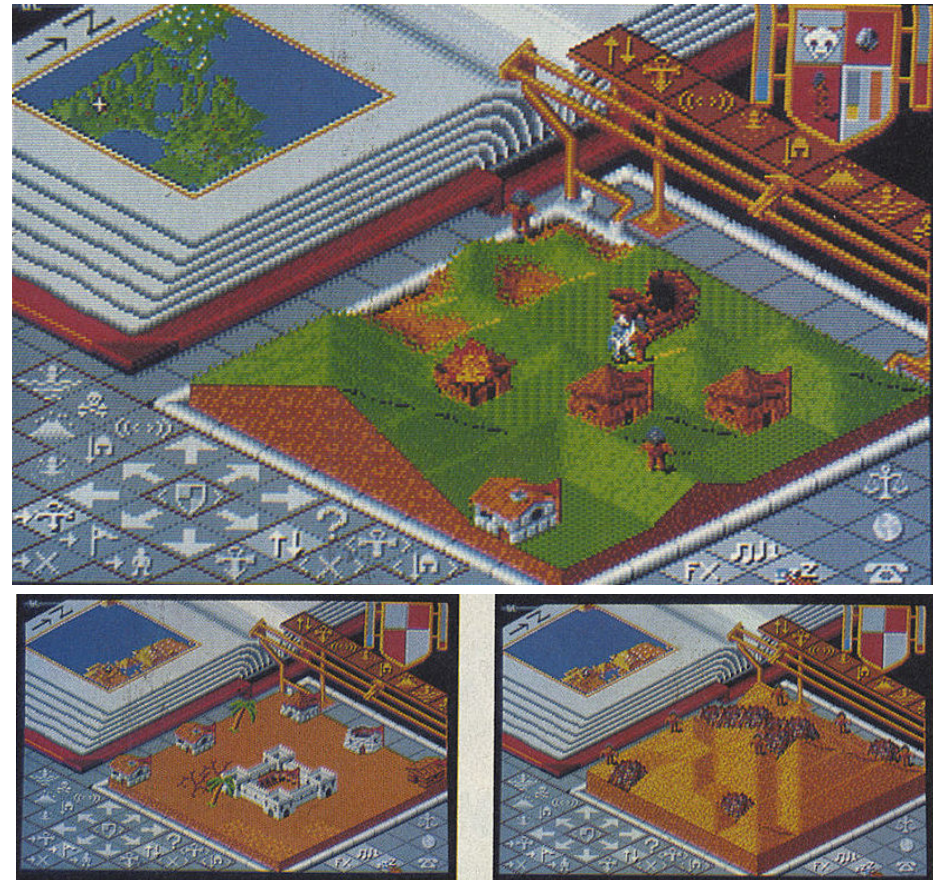


# Strategy Games /God Games (III)



Left: Favaro, Peter J.: Alter Ego, Activision, 1986, computer game.

Images of the Commodore 64 version, above: URL: <http://www.mobygames.com/game/c64/alter-ego/screenshots/gameShotId,240198/>; bottom: URL: <http://www.mobygames.com/game/c64/alter-ego/screenshots/gameShotId,240199/>

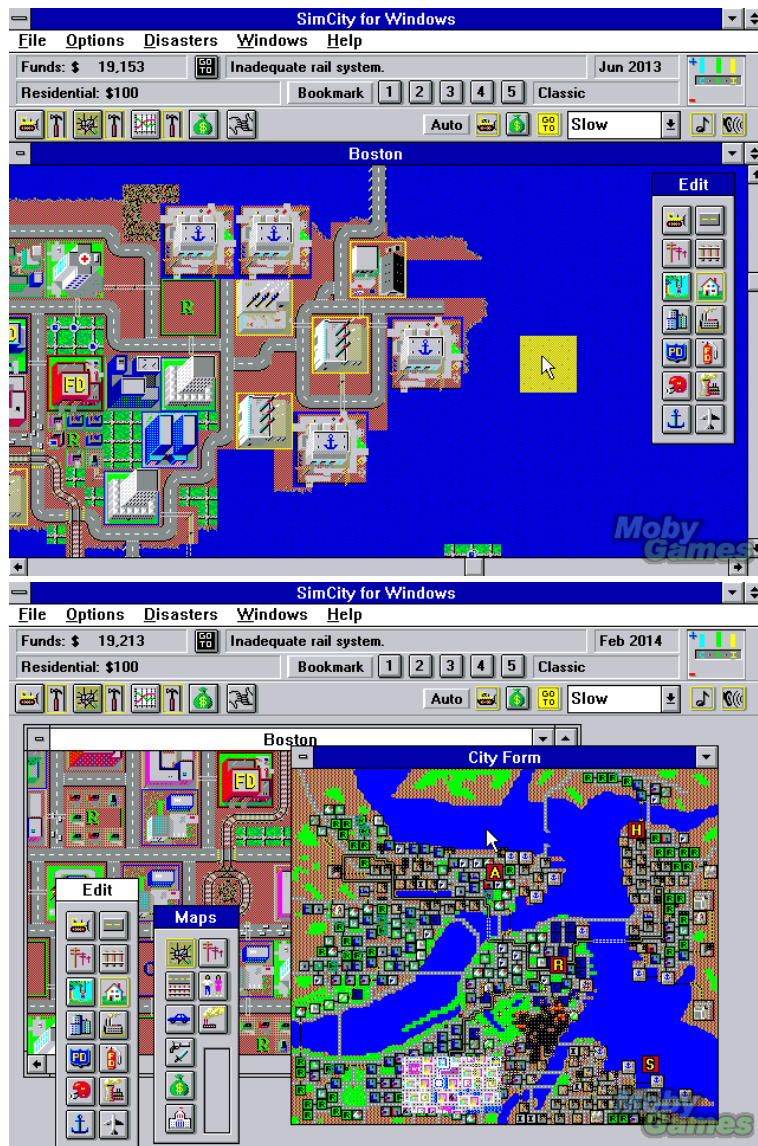


Right: Bullfrog Productions: Populous, Electronic Arts. 1989, computer game.

Image source: URL: [http://www.kultpower.de/archiv/heft\\_powerplay\\_1989-beste-spiele\\_seite76](http://www.kultpower.de/archiv/heft_powerplay_1989-beste-spiele_seite76)



# Strategy Games/God Games (IV)



Left, top and bottom: Wright, Will/Maxis: Sim City, Electronic Arts, 1989, computer game. Images of the Windows version, URL: <http://www.mobygames.com/game/win3x/simcity/screenshots>



Right, top and bottom: Meier, Sid/Shelley, Bruce: Civilization, Micro Prose, 1991, computer game. Images of Amiga version, URL: <http://www.mobygames.com/game/amiga/sid-meiers-civilization/screenshots>

Bibliography with informations about the abbreviations used in the captions:

Dreher, Thomas: History of Computer Art. Chap. Bibliography. In: URL: <http://iasl.uni-muenchen.de/links/GCA-IXe.html>