The History of Video Games

REPLAY, Tristan Donovan

Timeline – The **Manhatten Project**, new Mexico. Nuclear bomb test.

End of Second World War, with the bombing in Japan. August 1945.

The **Cold War period for the next 40 years** – polarisation of world into two in-congruent political ideals. Free-market democracies USA/communist east – USSR

This is the period of 'technological arms race' in which the the **Video Game would be conceived**.

1946 – The first programmable computer ENIAC, Pennsylvania University. $500,000. Used to create artillery firing tables.

Many computer scientists dreamt of being able to create **artificial intelligence**.

Scientific problem of the time dealt with **human-computer interaction.**

How can we make a computer play a game against a human **player**, or **opponent.**

Games like **chess** or **checkers** – traditional board games, were dealt with.

Researchers like Alan Turing (British Mathematician) and Claude Shannon (North American Computing Expert) worked on these problems.

The idea being: **A machine that can play a complex game can also be used to carry out a complex problem**.

Chess remained the ultimate test – others succeeded with more simple games.

1951 – **NIMROD** – funded by British Government, for the Festival of Britain. John Bennett, an Australian employee for Ferranti, designed the machine. 12 feet wide, 5 tall, 9 deep.
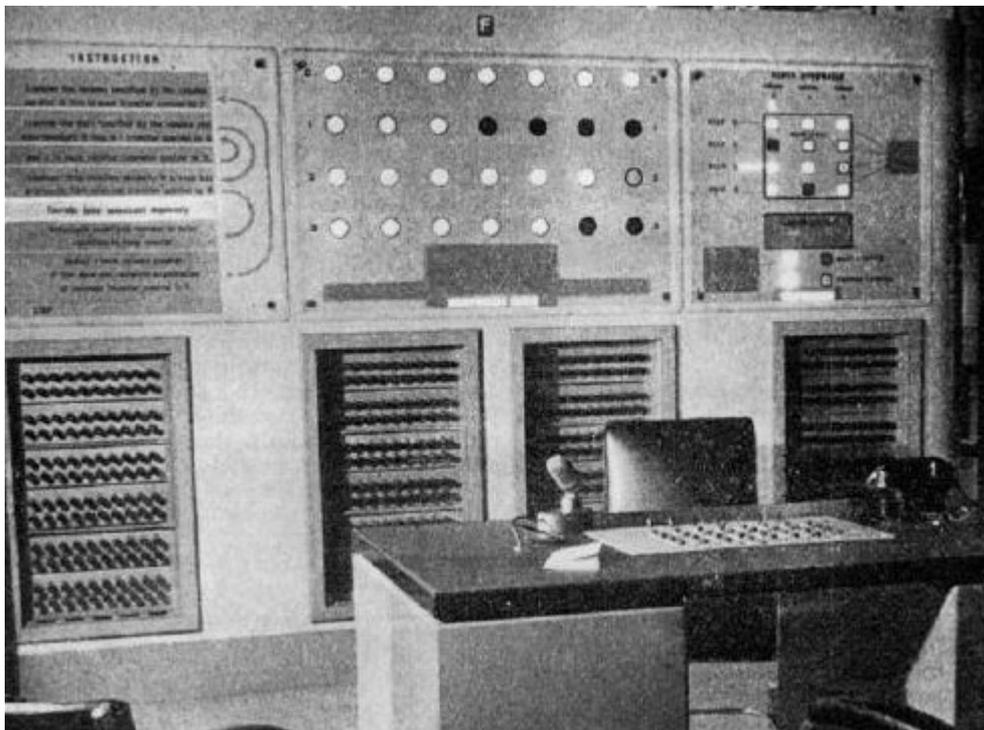
Illustration 1: Worlds First Gaming Computer

It was not about **entertainment** – it was about **research**.

Reporter comment .. "Like everyone else, I came to a standstill at the electronic brain"

1952 – PhD Student created a noughts and crosses program on the EDSAC, University of Cambridge, England.

1952 – Arthur 'Art' Samuel, IBM – Checkers. IBM 701, first commercial computer created by IBM.

1961 – Samuel's program was defeating US checker champions.

1946 – 0.5% households had television.

1950 – 9% US homes have television.

1960 – 90% US homes have television. *Before the war, television sets existed but ceased production for war effort on military displays etc. After the war the technological breakthroughs made during war brought the cost to produce television sets down dramatically.*

1947 – Dumont (tv network) "Cathode Ray Amusement Device". Missile and Target game. Never turned into a commercial device.

1951 - Ralph Baer (Born Germany), Engineer. Worked in Military Contracting company. Had a task to build a tv from scratch and 'had an idea' .. to build something into the tv set .. looking at the patterns and colours on the display "was kind of neat" (**Would come to fruition later**)

1958 – William Higinbotham. Worked on the Manhatten Project building timing switches. (Harboured mixed feeling and moved later into campaigning against nuclear proliferation.) Brookhaven National Laboritory – **Tennis For Two.** Was received well at the open day exhibit – for two years consecutive.
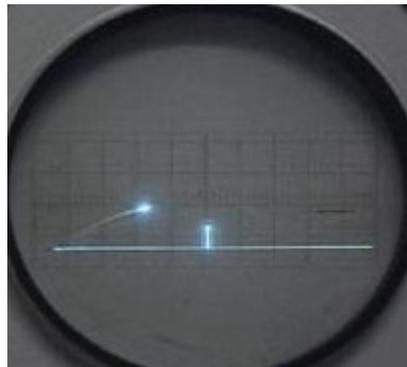
Illustration 2: Tennis For Two

The 1950's was a decade of false starts for the video game.

1960's – **The Tech Model Railroad Club.** Massachusets Institute of Technology (MIT). The club believed there was merit in the idea of creating anything that "seemed like a fun idea". When the University received the first Digital Equipment Corporation (DEC) PDP-1, the club had a committee on what to do with it. They decided to make a game. The game had to have some level of skill, and some sort of action. Decided on a 'space' game – maybe influenced by the black screen and vectorscope display.

1962 Spacewar! Video Game completed, with some revisions, on the PDP-1. The PDP-1 computer cost was $120,000, too expensive for anyone to think about trying to sell the game. Eventually DEC included the game with every PDP-1 sold.

1966 Ralph Baer had an idea waiting at the bus stop "Hey! Lets Play Games". (Channel LP). A $19 device that let people play games. "The Brown Box". Head of instrument design at Sanders Associates – (Military contractors). Called the project Channel LP. Project was 3 engineers working on games on sixth floor of the building. Games included a 'pong' like game, shooting and chase game. In later years when the money rolled in everyone was telling how supportive they were – but at first demonstrations reactions were "Stone Faced". "There were two guys among the directors who liked the idea. Everybody else thought I was nuts" End of 1967 project nearing completion. Cash flow problems elsewere in the company caused the project to halt.

1966 Bill Pitts explores Stanford University. Found Stanford Artificial Intelligence building by mistake and the PDP-6 doing some cutting edge science. "SpaceWar! Was one of the cool things at the A.I. Lab".

1969 PDP-11 arrives at $20,000. At that price, Pitts believes a coin-op version of the game might be possible.

1971. "Galaxy Game" completed. Programmed by **Bill Pitts** and **Hugh Tuck.**

Illustration 3: Galaxy Game.
Earliest Coin-op video game.

Bill Pitts could very easily have become business partners with

1971 Nolan Bushnell calls Bill Pitts. "He called me up and said, 'Hey, come on over and see what I'm doing. I know you're building a version of Spacewar! using a whole PDP-11 [computer] and that's gotta cost a lot of money and I just want to show you the one I'm doing because I think you're going to lose a lot of money.'" REPLAY – The history of Video Games.

1968. Bushnell and Ted Dabney team up to create a version of spacewar!. First attempted on the Data General Nova – a $4000 computer. (Which they failed to be able to do due to the computers limitations.)

1970. Bushnell concluded the game was doomed to failure. Then he had an "ah-ha" moment. Use dedicated circuits and just "do it all in hardware". In 1971 project was nearing completion and Bushnell started thinking who he could sell it to. Went for a trip to the dentist who knew a sales guy that worked at **Nutting Associates**, an amusement business company.

Nutting was formed by two brothers – one who was doing training software for US Navy. They adapted it to make "Computer Quiz". And also "I.Q. Computer".Bushnell's and Dabney's Galaxy Game was then just what they needed for their next follow up. "Computer Space". Sold 1500 units. Which was well enough.

MEANWHILE

Ralph Baer - "The Brown Box" - things formed into a deal with Magnavox to later result in the worlds first gaming console – The Magnavox Odyssey. Had 12 titles – Including shooting, Ping-Pong, Cat&Mouse chasing game.

Nolan Busnell went to have a look at the launch.

Syzygy, The company formed by Bushnell and Dabney struck deal to create video games with Bally Midway. (Chicago Pinball company). Decided to register the company – name was taken so they called it **Atari.**

That same day they hired Al Alcorn – Young Engineer that they worked with at Ampex. Gave him a simple game "Ping-Pong"to get him used to the basics. There was no deal to the game. Alcorn went to town on it though and they changed their minds. It turned into a fun game. They trialed it out at Andy Capp's, California. The game had ONE instruction **"Avoid missing ball for high score".**

Called the game "Pong". Gave it to Bally Midway but they didn't want it. There was no one player option. No games at that time were only two player. Meanwhile though the game was racking in money at Andy Cap's. Atari knew it had a hit. They gambled everything on the first run of "Pong" machines.

First run : 11 units

Second run: 50 units

Third run : 150 units. Funded. Turned a disused roller-skating rink into factory.

1972. Pong took the nation by storm. Many copies. Quickly went international.

Helped greatly the Magnavox Odyssey sell 200,000 units by 1974. Magnavox let Atari off lightly for $700 000 for right to sell the game. They saw Atari as a young company with not much money. With others they didn't go so lightly.

1974. 100,000 coin-operated machines across US.

Atari as a company had egalitarian values. Non-hierarchy. Relaxed work rules – though staff very committed. They had confidence they could out-innovate the competition.

Bushnell 'forms' Kee Games. A bogus rival company to subvert the distributors demands for exclusive deals on the geographical areas they covered. Concocted a cover story that Atari employees had jumped ship. Re-released Atari games under different names. Seemed credible. Kee Games could then reach distributors that Atari couldn't reach.

Kee Games came up with **Tank**, which did very well- 15,000 units.. Atari officially 're-merged' with Kee Games. Keenan became Atari's new president.

1975. Atari develops a console version of pong using integrated circuits (microchips).

1977 More than 60 pong style consoles and 13 million sold in US alone.

1976 Nutting Associates – Bally Midway relationship. Bill and Dave Nutting. Started using **micro-processors inside of pinball machines** and changed the way these were manufactured.

Nutting Associates redesigned Tomohiro Nishikados "Western Gun" video game to use the Intel 8080 **Micro-processor.**

This changed the way things were done drastically – from creating TTL in **hardware** to writing the game in **software.**

1975 US version of Gun Fight ready for production. $3 million in RAM and 60% worlds supply of RAM units.

1976 – Atari recruitment drive for software programmers for the micro-processor based games.

1975 Altair 8800. MITS (Same micro-processor as Gun Fight.**)**

Paul Allen and Bill Gates write a version of programming language BASIC and form microsoft to sell it.

Steve Wozniac creates a design for Breakout for Atari.

Steve Wozniac then decides to build his own computer – shows it to his friend Steve Jobs (who just returned from a trip to India). Jobs suggest they form a company to sell it to enthusiasts. The company sold 150 hand-made Apple 1's.

Wozniak sets the goal of creating a computer good enough to play state-of-art video games. And still have a good price tag. Goal was to have Breakout running in BASIC. When he got it working –

he described as "biggest,earth shaking, Eureka moment ever".

Commodore business machines release their first home computer **Commodore PET** just before the Apple II gets to market. Gets $3 million in pre-orders.

Came to be that the ONE THING people began to do soley on their home computer .. was PLAY GAMES.

Flight simulations transferred from the expensive simulation machines to the home computers.

Bruce Artwick almost single-handedly created the home flight simulator evolution (Evolved into Microsoft Flight Sim series)

Game genres emerged such as MUD (multi-user dungeons and dragons) – Richard Garriot being key player with his ULTIMA (Alekbeth) series. Hobbyist projects turned into the evolution of a new industry. Test adventure ZORK made it's way from university mainframes to home computers.
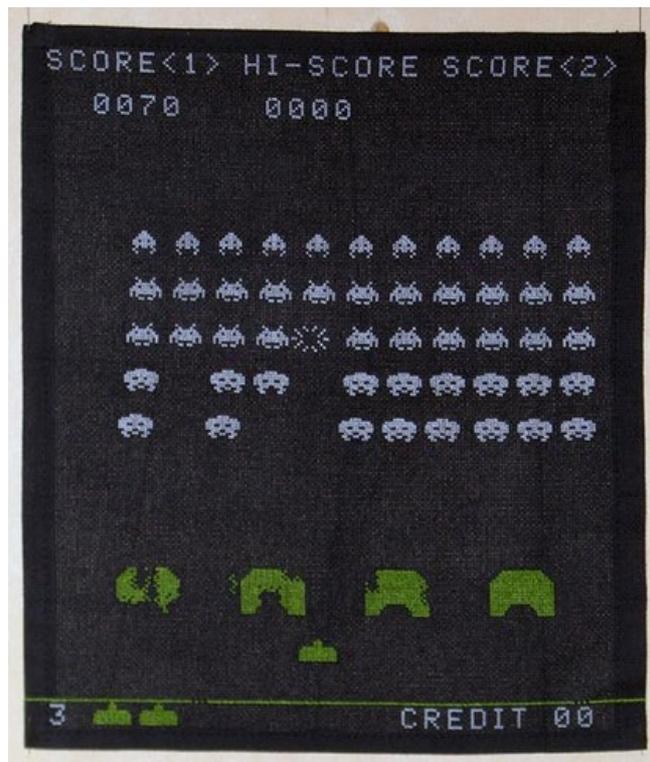
By **1981** AppleII had 23% of the home computer market.

1976 Atari up for sale to fund their home console VCS 2600. Warner puts up $28 million

Atari were a little worried about the handheld games just starting to arrive from toy company Mattel.

1979 Mattel Intellivision.

1980. Atari buys right to Taito **Space Invaders.** This basically sealed it – There were no more worries about the handheld game competition .. **every kid in America wanted an Atari 2600, and to play Space Invaders on it.**

Illustration 4:
http://spritestitch.wordpress.com/2007/11/04/space-invaders-arcade-cross-stitch/