

Arte, Tecnología y Cultura, catalogue of the exhibition held at the Centro de Arte y Creación Industrial LABoral, Gijón, 2007.

GUBERN, Román. *Del bisonte a la realidad virtual. La escena y el laberinto*. Anagrama, Barcelona, 2003.

JENKINS, Henry. *Games, the New Lively Art*, in Jeffrey Goldstein (ed.) *Handbook for Video Game Studies*. MIT Press, Cambridge, 2005.

LÓPEZ SILVESTRE, Federico. *El Paisaje Virtual. El cine de Hollywood y el neobarroco digital*. Biblioteca Nueva, Madrid, 2004.

WEIBEL, Peter. *World of Games: reloaded*, catalogue of the permanent exhibition of the Centre for Art and Media, Karlsruhe (Germany), 2004.



A SHORT HISTORY OF VIRTUAL WORLDS

[CARLOS LÓPEZ]

Virtual worlds, especially Second Life, have made the headlines and flooded the media in the year 2007. Moreover, the history of virtual worlds can be traced back to the 1960s and 1970s, with the development of the necessary technology and, more importantly, the concepts on which they are based. The corporate world has only recently started to view these worlds as a platform from which they can interact with potential customers. This kind of interaction is but one form of what we now know as Social Media Marketing, with which corporations try to approach social networks, the latest big Internet boom.

Within these contexts, corporations are obliged to “change the pace”; the manner of communicating is no longer between one (the corporation) towards many (the consumers), but rather between many and many. This connection becomes even more complicated

when we talk about virtual worlds, three-dimensional spaces with complex social norms. The first marketing actions were perceived by many virtual world users as mind-numbing. On the other hand, corporations have understood that their products are present in these spaces even without their direct intervention and are currently facing the dilemma of trying to limit this use, or at least to try to benefit from this presence.

The explosion of virtual worlds that has been experienced over the last few years is a phenomenon whose origins go back several decades to the emergence of concepts such as virtual reality, telepresence or the use of programming languages to represent three-dimensional spaces.

Although for the true purists, none of these technologies can be considered tantamount to a virtual world, as a whole they contributed to the creation of the concept of virtual worlds, such as we understand them at present. They also laid down the first technological building blocks that facilitated their creation a few decades later.

We shall now present a brief history of the technical advances that led to the creation of virtual worlds. We shall also comment upon the current state of affairs and our own personal opinion on the future of this technology.

VIRTUAL REALITY

We can define the concept of virtual reality as the capacity of reproducing a real situation through mechanical or electronic means that generate an immersive perception that mimics reality as faithfully as possible.

The term started to be used back in the 1960s and 1970s. We shall now go into the first practical applications of this concept, which although fairly rudimentary at the onset, have gained in complexity and realism. Although the purpose of a virtual world is not to represent reality, but rather to create a completely new space, the sum of these technologies and the fact of further

developing the concept is what enabled the creation of virtual worlds. Whereas, at the time, the inventors of these technologies could not have imagined their future applications, each of their steps brought about, years later, the realisation that it is possible to create three-dimensional spaces in which to interact with other users. Unwittingly they pioneered a field that had yet to be discovered.

SENSORAMA

Morton Heilig was one of the main promoters of virtual reality as such. In 1962, Heilig applied his experience in the film world to create a machine called Sensorama. This machine operated mechanically and projected stereoscopic images (in three-dimensions) on a device similar to an arcade console.

The illusion of three-dimensions was possible by simultaneously recording images with three 35 mm cameras (as used in commercial cinema), and later projecting them in the apparatus. Simultaneously, the machine would reproduce wind, a certain degree of movement and even aromas to make the whole experience even more realistic. The first film to be shot for this system reproduced a bicycle ride through Brooklyn (NY).

Unfortunately, Heilig was unable to secure enough funding to shoot more of these (very expensive) films to be later reproduced in his machine. Consequently, Sensorama became just another gimmick in the history of virtual reality and technical ingenuity. Nonetheless, this device was a sensation at the time because of the realism of its projections. It still is, in the machines that continue to operate decades later.

THE SWORD OF DAMOCLES

Other pioneers appeared many years later. In 1968, Ivan Sutherland created what is considered the first augmented reality device designed to be installed on the head of an operator (like a helmet). This device was

enormous, so much so that it had to be suspended from the ceiling, as those who wore it were unable bear it on their own.

This was one of the first devices of a category later known as Head-up Displays (HUD). These devices, placed on the head, as if they were a pair of spectacles, are used to view information as if on a screen. They evolved over time and even developed a military use. Their military use revolves around the capacity to display information while maintaining vision of the real world, for example, a fighter pilot can view information on the airplane's apparatus without having to look down to the instrument panel.

This device, developed in 1968, was one of the first in this category. It was known as "the sword of Damocles," possibly a quip relating to the device's enormous weight. In fact, the operator did not put a pair of spectacles on; the operator was placed beneath this enormous device. The machine only reproduced polygons and its graphic capabilities were very limited. The underlying technique behind this invention was relatively simple, a camera was placed in the room that was to be reproduced, and the camera imitated the movements that the operator made with his head. At the same time, the system displayed a fairly poor representation of the space through polygons.

ASPEN MOVIE MAP

The Aspen Movie Map was next step in this race to discover new technologies in the field of three-dimensional technology. Created in 1977 by the Massachusetts Institute of Technology (MIT), this was a visual map of the city of Aspen, made up of millions of photographs. The technique that was employed is actually very similar to that which years later, has been used by Google to develop "streetviews" in Google Maps.

Back in 1977, this technique, although far more primitive, incorporated a vehicle equipped with several cameras. These cameras took snaps of the street (frontal and lateral photographs), every few meters. This

overwhelming number of photographs is later uploaded into a computer program that can reproduce a specific itinerary. In the Aspen Movie Map, the data was saved in Laserdisc technology –the predecessor of DVDs (does anyone remember them? Those huge disks!) The itinerary was displayed on the screen as if we were driving along the street, including the possibility of changing directions, stopping and observing, in greater detail, the buildings that were on the way. For trivia's sake, the project managers decided to photograph the city both in summer and winter, to show the city covered in snow and without snow.

As with many cases of technological progress, the development of the Aspen Movie Map was related to a military project. The goal was to ensure that soldiers could familiarise themselves with a new environment, a new war theatre, as rapidly as possible. In theory this could be done by starting them off on a three-dimensional vision of the field, before they went into combat.

The results that were obtained at MIT with the technology that was available at the end of the 1970s are truly incredible. A demo video can be viewed at the following Internet address:

(<http://www.youtube.com/watch?v=Hf6LkqgXPMU>).

VRML

The term VRML (Virtual Reality Modelling Language) was created by Dave Raggett and was destined to become a standard for the representation of three-dimensional spaces on the Web. In a time where the Internet was still an infant and its standards were still being laid down, a team of people emerged that believed in the enormous potential that the creation of three-dimensional spaces could have on the Web. VRML was conceived to satisfy this dream, in the same way that the HTML was created to standardise Web page access.

In fact, Tim Berners-Lee, the father of HTML (back in 1980) and one of the Internet's

founding fathers also participated in the team that saw the birth of VRML.

VRML even helped to create what is considered one of the first virtual worlds, Cybertown –a three-dimensional chatroom. Although it did not generate the massive response that was expected, VRML has been used broadly in the academic and research fields and was the predecessor of a new format, X3D. These standards for the representation of information in three-dimensions are still being used at present, especially in medical, military and educational applications.

THE FIRST VIRTUAL WORLDS

Virtual worlds have very diverse origins, some appeared as an extension of chats, to display an image of each of the participants, and give these spaces a more interactive nature. Others evolved from the extension of games that launched versions for on-line gaming. The following are generally considered the pioneers in this field:

- Habitat

This is considered to be the first virtual world as such. It was an on-line role-playing game launched in 1986 and developed by Lucasfilm for the star of the computer world at the time –the Commodore 64. It was not a three-dimensional world, but it already included representations of its users, avatars. This world was "governed" by its users, and, at the end of the day, they took the decisions. The avatars could be stolen and even murdered, which led to a certain amount of chaos and the creation of avatars with greater powers, entrusted with maintaining order. This software was sold and resold between corporations, until it was finally bought by Comuserve who launched the game, calling it Worldsaway.

- The Palace

This chat service started to offer the possibility of designing a character that would represent the user in the various chatrooms. Its

appearance and clothing could be modified, just as accessories and certain objects could be incorporated. It was originally launched in 1996, and although, not strictly a virtual world it introduced some of the possibilities that would eventually be available in the virtual worlds that were later to be created.

- CitySpace

This virtual world was created in 1993 and was one of the first user-made virtual worlds. Essentially, this means that the users could design objects, avatars and even buildings. In the end, it was only operational for three years, until 1996.

PRESENT SITUATION: THE VIRTUAL EXPLOSION

There has been a real explosion over the last five years as to the number of initiatives regarding virtual worlds. Dozens of virtual worlds have been created. The following are just some of them:

- There.com. This virtual world is similar to Second Life. One of the more significant differences is that all of the objects that are created must go through a process of moderation/ approval.

- Habbo Hotel. A virtual world created by a Finnish company and conceived for younger children. In this game, we can create a room of our own, which can be decorated by purchasing items with Habbo credit. Habbo credits can be obtained with real money.

- The Metaverse Project: The purpose of this project is to create totally free software for the creation of virtual worlds.

- Active Worlds: A veteran in the sector, as it was created in 1995; in this virtual world, the users can also create objects. The corporation also licences the software to allow third-parties to create personalised virtual worlds.

Corporations from the world of entertainment have also launched virtual worlds. One of the more noteworthy cases is that of the television

channel, MTV, which offers musical content in the United States and in half of the world. MTV launched Virtual Laguna Beach in 2005. This virtual world is based on the There.com technological platform, and targets the youth, a very specific segment of the audience, that is the focus of its other media content. The goal of this virtual world was to expand the experience linked to music and to create a community around it. Furthermore, it also aimed to create a new advertising platform, in which MTV can sell publicity space.

MTV's virtual world was an instant success, and has known how to create an important community of users.

THE FUTURE: 2008 AND BEYOND

Virtual worlds are a recent phenomenon. Most of them have appeared over the last five years. In fact, the great news explosion in traditional media outlets occurred throughout the year 2007, bringing Second Life into the headlines of the media.

Criticism was soon to follow, as of the summer of 2007. It all started with an article published in Wired, one of the most popular magazines focusing on technology and trends. This specific article criticised the small turnout of visitors in sites created by large corporations, and insinuated that corporations were wasting vast amounts of money in platforms with hardly any audience. We are clearly not going to surprise anyone by saying that the media benefit financially with their headlines, and this would seem to be what Wired was seeking, above all because all of the data included in the article criticising Second Life were already well known and had been previously published. We can identify two critical factors behind this small initial disenchantment: It still is not a mass medium.

First and foremost, virtual worlds are not mass mediums, and they are still far from being so. At their peak moments, virtual worlds such as Second Life might be able to boast of having

a maximum of 50,000 users on-line (in the entire world) at one time. Does this mean that the future is bleak for virtual worlds? Not at all.

Despite the fact that virtual worlds have experienced a boom in the number of users over the last few months, they have still got a long way to go. Furthermore, the characteristics of these platforms are so new and powerful that they are clearly here to stay. Within this context, corporations have been the last ones to jump onto the bandwagon. These corporations have only recently started to launch advertising campaigns, taking advantage of the vast amount of free publicity that any initiative in a virtual world could obtain.

To some extent, virtual worlds are now what the Internet was 15 years ago, a new and promising space that has yet a long way to go, which is still in its infancy. The difference lies in the fact that corporations will probably have less time to adapt than they had with the Internet. At present, there are already many advanced Internet users who exploit the Net to its full potential. As virtual worlds incorporate greater functionalities and the learning curve (the time it takes to learn how to use it) starts to subside, there is no doubt that this significant number of Internet users will join these worlds, creating their own virtual lives. Indeed, we must not forget the new generations of youngsters for whom the virtual world will be something natural, which they have experienced from a very young age.

We are convinced that these new generations will no longer consider that having a second virtual life can be a problem, a reflection of asocial behaviour, or of difficulties in establishing relationships, it will be perceived as something completely natural, as we presently consider watching television, going to the cinema or reading a book.



THE MARE NOSTRUM SPACESHIP: A PANSPERMIC METAVERSE

[DAVID ZEHNTER [APFEL]
THE ASTRONAUTS' CLUB

"It is imperative that we give up the idea of ultimate sources of knowledge, and admit that all knowledge is human; that it is mixed with our errors, our prejudices, our dreams, and our hopes; that all we can do is to grope for truth even though it is beyond our reach."

Karl Popper

THE ROADMAP

The aim of the Astronauts' Club, since its foundation, is to carry out an interstellar journey. To fulfil this goal it aspires to construct the Mare Nostrum Spaceship. This spaceship is inspired in the panspermic theory and bases its functionality on the idea of the metaverse and neurotechnology. We define its vision as a "panspermic metaverse", which is understood as an artificial panspermia, an advanced virtual world simulated by a supercomputer in which a crew of virtual astronauts lives while travelling through our galaxy, the Milky Way. Thanks to neurotechnology, the astronauts can overcome their biological limits, and therefore the time-space barrier. The mission of the Astronauts' Club is to help develop strategies that will facilitate this goal. The first phase of this mission consists in the compilation of a roadmap that covers a series of key and relevant technologies for the pursuance of this goal. The roadmap serves as a futuristic analysis on the most recent advances in the following fields: the metaverse and virtual worlds, the sociology of the metaverse, augmented reality, brain-computer interfaces, neuronal prosthetics, tele-robotics, neurotechnology, virtual