

IDENTIFYING THE CONNECTION BETWEEN TRADITIONAL AND COMPUTER ANIMATIONS THROUGH THE HISTORICAL TRANSITION OF LAYERS

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INTRO

Conducting a breakdown of animations developed through the ages, and underlining the unique relationship of layers used in the different animation process as well as techniques along with the technical developments and usage of analog and digitally generated outcomes. By briefly identifying the three types of animations along with their technical process that divide them into the three main categories in technical developments, which will be the starting point for the historical insight to the similarities that the zoopraxiscope and multiplane share as well as a fragmented insight to their makers and contribution to the cinematic world of animation. This essay is not only going to identify the historical events that the identification of layers are linked to, but also the present and the future of the ever growing development of the technological advancements that may follow. By looking back into the past of how the making of animation occurred, we are able to become our own whiteness to a evolutionary state on this technical growth of sophisticated animation and their unique process of their development. The insight to the THEN, the NOW, and the WHAT it could be in the future.

THREE MAIN TYPES OF ANIMATION

There are three main types of animation that are still used today to lure audiences to the imaginative dwelling of illusions that pursue our imagination. These three techniques consist of traditional animation, stop-motion animation, and computer animation.

Traditional animation

A traditional animation is when each one of the frames are hand drawn and repeated onto clear celluloid pages in which the pages are then hand painted using water colour or gouache paint. When the cells are then placed in the correct animated sequence through a contraption called a multiplane camera, the two dimensional drawings come alive. (Example; *Image1; Snow White and the Seven Dwarfs, 1934*)



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Stop-motion animation

Stop-motion animation is a technique used to create the appearance of a static object moving. This animation technique is usually used for puppet based or clay modeled figurines. The characters are brought to life when the figures movements are broken down into increments as one frame. When the static frames are played together, the animated figure breaths life.

(Example; Image 2; *The Nightmare before Christmas*, 1993)



Computer animation

A computer animation is a technical process of generating an animation using computer graphics. Three dimensional objects are then modeled, animated, recorded and rendered into a high quality animation.

(Example; Image3; *Luxo Jr*, 1986)



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Thou each of these animation techniques form an individual purpose that identifies their uniquely composed outcome, these different techniques are used to arrive at the same visual goal. Traditional and computer animations share a significant connection that intertwines them in a symbiotic relationship in the use of layers.

EADWEARD MUYBRIDGE

Eadweard Muybridge was a pioneer whose experiments and photographic developments captured the first visual step in cinema evolution, developed from still photographic frames that features an object moving. When the layers of photographs are placed in the correct order and played together, the object becomes animated, setting the illusion of a moving picture.

Muybridge's success was a direct accomplishment from a piece of technology that he, himself designed and developed for the purpose of capturing an object in motion. Muybridge developed the 'Zoopraxiscope' in 1878, which his sequenced photography helped to uncover the truth behind the understanding of how a horse runs.

Kingston Museum holds one of the largest collections of Eadweard Muybridge's works. The collection consists of; *biunial lantern and lantern slides*, animal locomotion prints, panorama of San Francisco (1878), and the original zoopraxiscope including glass discs. The Museum situated in Kingston Upon Thames, houses the 67 glass discs out of the known surviving 71. All of the zoopraxiscope glass discs in the museum was the original discs in Muybridge's possession, and was generously donated by Muybridge around the time of his death in 1904, along with the surviving zoopraxiscope.

While attending the Kingston Museum, I couldn't help but imagine what Eadweard Muybridge must have thought when his imagination became his reality. What magic would have been cast upon his images to have had the possessed to a devilish state of motion. From a distance the zoopraxiscope appears to be of a torturous nature and yet full of character in which the craftsmanship of the contractions design speaks for itself.

Zoopraxiscope

The zoopraxiscope was earlier known as the "zoogyroscope", and was a dissident of the phenakoscope, which was also known as the "spinning picture disc".

The zoopraxiscope devise would project a sequence of images from the glass discs of which the artwork would be painted onto and devised in order to prove the authenticity of Muybridge's galloping horse pictures. It is apparent that the zoopraxiscope produced a distortion when projecting the images, but this was compensated for by painting the images in an elongated form. Thou the zoopraxiscope took 12 inch glass discs, the earlier zoogyroscope took the 16 inch discs.

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The zoopraxiscope was designed for the sophisticated development of animation, and thou I am sure that in its days, it would have been taken as a serious piece of technology. Compared to technology that we have access to today, the zoopraxiscope looks more like a children's toy. Without disregarding Eadweard Muybridge's findings and experimental development, I'm sure that with the zoopraxiscope to start the building block for animation technology, influencing the development of Walt Disney's multiplane camera device may not have been inspired

WALT DISNEY

In 1934, Walt Disney announced the creation of 'Snow White and the Seven Dwarfs', the first full-length movie made in Technicolor and had an official soundtrack. Ub Iwerks was a former animator and director at Walt Disney Studio's, who invented the 'Multiplane Camera' in 1933. Walt Disney, the creator of Walt Disney Studios, has been feeding out hunger for entertainment since 1923, when it was known as Disney Bros Studio. Disney blest us with the birth the most recognized mouse known, 'Mickey Mouse' in 1928. Since that date Mickey Mouse has under gone some characteristic changes since his appearance in 'Steam Boat Willy', as well as the rest of the Mickey Mouse crew. The Disney Studios are also known for the animations such as Fantasia, Bambi, Peter Pan, Mary Poppins, and Pete's Dragon, and many more fantastic animations that have been on our screens.

The film 'Saving Mr Banks', realest in November of 2013, was based upon the story of Walt Disney and the making of Mary Poppins. The film features a fantastic, historical insight to the Disney Studio, and Walt Disney himself. The film also exposes aspects of Walt Disney's personality, and the ways in which his imagination inspired his work as well as his fantastic team of animators.

The Multiplane Camera

The multiplane camera created a three-dimensional effect using two-dimensional drawings which artists drew by hand, each sequence of movement for each character. By moving the multiplane camera at various speeds and distances from one another, the detailed composition of hand drawn layers built up realistic movements which animated the composition of still frames and transformed them into a movie.

"Parts of the artwork would be left transparent to allow other layers to be seen from behind. By having different layers of artwork moving at different speeds, depth could be created - the further away from the camera, the slower the speed."

It is the depth of field that transforms a two-dimensional image, creating the illusion of a three-dimensional effect. Without this depth of field the image would look flat and lifeless. Recognizing similarities in the designs of Muybridge's zoopraxiscope and Walt Disney's multiplane camera, underlines the relationships shared with the function of layer.

After Walt created 'The Little Mermaid' in 1989, the studio pushed forwards with their animation techniques and switched from hand drawn and painted animations, to using a new, more computerized techniques in their animations.

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COMPUTERIZED ANIMATION

This more realistic, computerized animation production system also called 'CAPS', was a huge success in 1986, with Pixar's first short film, 'Luxo Jr'. The animation consisted of realistic features of a baby lamp interacting with a toy ball. This first step in computer animation opened the flood gates for effects, but also the sophistication of hardware and software.

The famous entertainment company known for their outstanding animations, Pixar Animation Studios, the producers of "Bugs Life" and "Toy Story", was once an unknown company in the 1980s. Pixar produced some of the most photorealistic graphics of its time using computer graphic technology called RenderMan, and they wanted to produce something that showed off the technology. John Lasseter was the animator that was set the task of producing a short film which was to be aired at the annual SIGGRAPH computer technology expo.

John Lasseter states; *"I started working on doing lamps. I modeled one Luxo Lamp, and then a friend of mine came over with his baby. And then I went back to working on the lamp, and wondered what the lamp would look like as a baby. I scaled different parts of it down: the springs are the same diameter, but they're much shorter. The same with the rods. The shade is small but the bulb is the same size. The reason the bulb is the same size is because that's something you buy at the hardware store; it doesn't grow."*

Its intriguing how John Lasseter developed his lamp characters, wanting the realistic feel to something so surrealistic, and even the visual breaking down of the character. The reasons of why certain elements of the 'Jr' character, and the imaginative ideas of what should be scale greater or smaller.

COMPUTER PROGRAMS

Updates and technical improvements have been a consistent aspect for all computer animation programs. It is important for the animator to stay updated with the programs as the program updates constantly offer new function and sophisticated improvements to the development and production of animations, but even with all the technical improvements to the programs, the function of layers as never changed. Programs such as cinema 4d, adobe photoshop, and adobe after effects all still use the basic formation of layers in their program. I guess that the layout of the artwork in layers make it more accessible to editing, as well as understanding which layer does what.

Cinema 4d, a program that allows the animator to model an object, texturize, and create the illusion of realism as well as the development of a functioning animation. A basic example of the use of layers in this program would be when creating a grassy environment. The animator may use a cube structure to create the basic foundation of a hilly landscape, extruding selected sections of the faces in which depth of field is introduced. To create the illusion of soft, realistic grass, the up right faces are selected and simulation fur is applied. The simulation fur comes equipped with its own material layer in which the animator can control density, growth, length, and also the colouration of the grass. Selected formations in the side menu column can be activated or deactivated at will to add or subtract a structure in the current view.

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Adobe After Effects is a video editing program of which the editor can assemble together a video before submitting a finished outcome. This program also separates each item into editable layers. The simplistic idea of separation each type of layer into different colours to help differentiate the individual imagery, sound, and video. For example; static images such as a JPEG will submit a purple colour, a QuickTime movie file would be subjected to a dark green colour, editable text which can be applied in the program would be bright red, and a sound file such as a MP3 would be a lighter shade of green. As well as each of the layers being divided by colour, each individual layer can be edited whether it involves an increase or decrease of time, the transition from one layer to another, or adding an effect such as a particle emitter.

CONCLUSION

After evaluating the evidence and contributed, historical knowledge of process and events, It is proven that layers play an important role in the technical development of visual animations. Whether their crudely conducted experimental developments or high quality, digital animations, webbed together and demonstrate a more technical method of sequenced images. Its astonishing how evolved the cinematic world has become, but its like what Sherry Turkle said about the internet and the perspective view on how today's generation grow up with the internet and wrongly assuming that the internet is grown up too. Technology is constantly evolving at an international scale, competing against one another in a turmoil fashion, in an industrial state of evolutionary growth. Its also interesting that thou these animation techniques have managed to develop into a digital state, the basic formula of layers is still applied. I wonder what the next technical development may consist of and how it may trump other computer programs. Its the need to feed and fuel how deep imaginative desire that drives a theoretical idea, something that seems visually impossible to accomplish, becoming the inspirational push in the direction of visual to physical development.

Taking into consideration the technological advancements that peruse futuristic developments in the way that we may wish to accomplish our own satisfaction in visual effects is left to stay in the future as we move on from the pass, and work in the present in order to succorer a future. There is no telling what the future holds for the development of cinematic animation, but what I can be confident to suggest is that the usage of layers will be a permanent trend that will follow through to higher forms of the already existing technology.

The future of animation looks bright. Thou the path is not clearly laid out, I can strongly assume that the function of layers will stay consistent and development will take place and transform into a higher level of animation. The evolutionary concept of flourishing technology doesn't just transform our cinematic experiences, but also our imagination and expectations rises higher and greater, increasing the animation industry to meet or even beat our expectations. The creative illusion in which we evacuate to in order to escape our reality needs to be visually realistic in order to be able to believe in the utopia of which we imagine.

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Rain Noe. (2011). The story of the Modern Desk Lamp, Part 4: Pixar and Luxo, Jr.

Available: http://www.core77.com/blog/object_culture/the_story_of_the_modern_desk_lamp_part_4_pixar_and_luxo_jr_21390.asp. Last accessed 11th Dec 2013.

Ben Simon. (2002). The One That Started It All...The Making Of Snow White. Available:

<http://animatedviews.com/2002/the-one-that-started-it-all-the-making-of-snow-white/>. Last accessed 27th Nov 2013.

Danette Watt. (2013). How Disney Used The Multiplane Camera to Make Snow White and the Seven Dwarfs. Available: <http://danettewatt.hubpages.com/hub/Snow-White-and-the-Seven-Dwarfs-Disneys-groundbreaking-animated-movie>. Last accessed 27th Nov 2013.

Stephen Herbert. (2010). Muybridge related Correspondence, Kingston Museum Collection. Available: <http://www.stephenherbert.co.uk/mLETTERS.htm>. Last accessed 27th Nov 2013.

JCHAN. (2012). Multiplane Camera. Available: <http://www.animationschooldaily.com/?p=889>. Last accessed 27th Nov 2013.

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(Image1)

Ben Russell. (2013). Snow White and the Seven Dwarfs (1937). Available: <http://themoviemanager-bennyjayruss.blogspot.co.uk/2013/05/snow-white-and-seven-dwarfs-1937.html>. Last accessed 3rd Jan 2014.

(Image2)

James Bjorkman. (2012). The Nightmare Before Christmas (1993) - Tim Burton's Masterpiece. Available: <http://animatedfilmreviews.filmspector.com/2012/11/the-nightmare-before-christmas-1993-tim.html>. Last accessed 3rd Jan 2014.

(Image3)

Chris Garcia. (2013). Pixar's Luxo Jr. Available: <http://www.computerhistory.org/atcm/pixars-luxo-jr/> . Last accessed 3rd Jan 2014.