Chris Thompson

Professor Edmonds

Art of MC Escher

2/18/17

The impossible Perspectives of M.C Escher

“Only the impossible is worth doing” (Akong). This quote by teacher and motivational speaker Akong Rinpoche exemplifies the human minds fascination with the infeasible. Due to human nature, individuals seek the unattainable and strive for goals that are often not achievable. This was no exception for Maurits Cornelis Escher. Much of the work of M.CEscher defied the laws of geometry and physics and forces the human mind to question if such objects or perspectives could ever exist (Impossible). Escher was able to take two-dimensional drawings and convey them in such a manner that makes you question if they are really three-dimensional. These works of art became very intriguing to the human imagination. They were also unique in the time period they were drawn and remain unique to this day. Escher’s work with impossible geometries and perspectives are what many of his followers remember the most about him, although he worked with many more pieces that did not involve impossibility. In this paper I will briefly explore the life of Escher by analyzing a few of his pieces and exploring his unique style and talents with impossible objects. I will compare some of his pieces and look for similarities as well as differences.

Escher, born in Leeuwarden in 1898, was by no means considered a good student in high school by today’s standards. Escher had to repeat a grade twice before his father thought the most suitable plan for his boy was to aim down the path of scientific training.

Escher was sent to the school of Architecture and Decorative Arts in Haarlem under the architect Vorrink (Ernest). However, his architectural training did not last long and young Maurits Escher changed courses and de Mesquita became his main professor. Upon leaving art school in the spring of 1922, M.C Escher traveled to Italy where he was met with many inspirations and make a significant amount sketches(Ernest). Contrary to many sketches, he had also held a few small exhibitions and illustrated one or two books. Unfortunately, due to his unpopularity as an artist, his work did not sell well. In 1935 M.C Escher and his family decided to leave Italy because of fascism (Ernest). He tells the story of his eldest son, George having to wear the Ballila uniform at the age of nine. They settled in Switzerland, at Chateau d’Oex but their stay was brief due to the unbearable winters and his desire and longing for the sea. M.C Escher and his wife would travel south of Spain where they would visit the Alhambra in Granada for the second time. Here is where he would study with intense interest the Moorish ornamentations with which the walls and floors were adored. This is also where the foundation was laid for his pioneering work in periodic space-filling (Ernst).

Bruno Ernest writes about the idea of deceptive drawing in his book, *The Magic Mirror of M.C. Escher,* by saying “Drawing is indeed deception. We are being persuaded that we are looking at the three-dimensional world, whereas the drawing paper is merely two-dimensional” (Ernst). This technique was virtually mastered by artist MC Escher. He regarded this as a conflict situation and tried to show this closely in a number of prints (Ernst).  It is believed that Escher’s fascination with impossible objects started with his journey through Spain with his wife. On their second trip to the Alhambra Palace in Granada, Escher became inspired by the beautiful geometric tiling and the architecture (Poole).

Escher does arguably his best work showing contrast  between the two-dimensional flatness of a sheet of paper and the illusion of three-dimensional volume that can be created with certain marks in his famous drawing in, *Drawing Hands* (Poole). This type of artwork by Escher is considered to be impossible perspective and uses a technique called mutual constitution; that is the principle of one entity being formed by the other and vice versa (Drawing). “In this lithograph we are met with the image of one hand drawing another hand, while at the same time, this second hand is busy drawing the first hand while this is all illustrated on a piece of paper fixed to a drawing board with thumbtacks all in black and white color” (Ernst). The first hand, which appears to be three-dimensional, is drawing the two-dimensional sleeve of the other hand. Contrary to the first hand, the second hand is doing to same; drawing the two-dimensional sleeve of the first hand. Escher seems to depict a simple creation paradox where neither hand seems to have an origin (Drawing). The hands seem to become more detailed and become shaded darker as we get further away from the sleeves. This composition is unique and different to many of M.C Escher’s other pieces because it includes both two-dimensional and three-dimensional perspectives in a single piece. This is used to both create and challenge our illusion of realism (Drawing). This image may be difficult for the human imagination to comprehend that it is in fact a two-dimensional drawing and not a three-dimensional piece that has volume.  This piece by Escher takes two different forms of art and combines it into one masterpiece. Jeffery Keilholtz writes in his article, *What is the Meaning of Escher’s Drawing Hands*, that “Prior to the Renaissance, according to the Art Institute of Chicago, artists painted pictures that appeared on the same two-dimensional plane. The result was a very flat image. Linear perspective was developed during the 13th and 14th centuries, giving artists a vital tool to draw or paint images with a sense of depth” (Keilholtz).

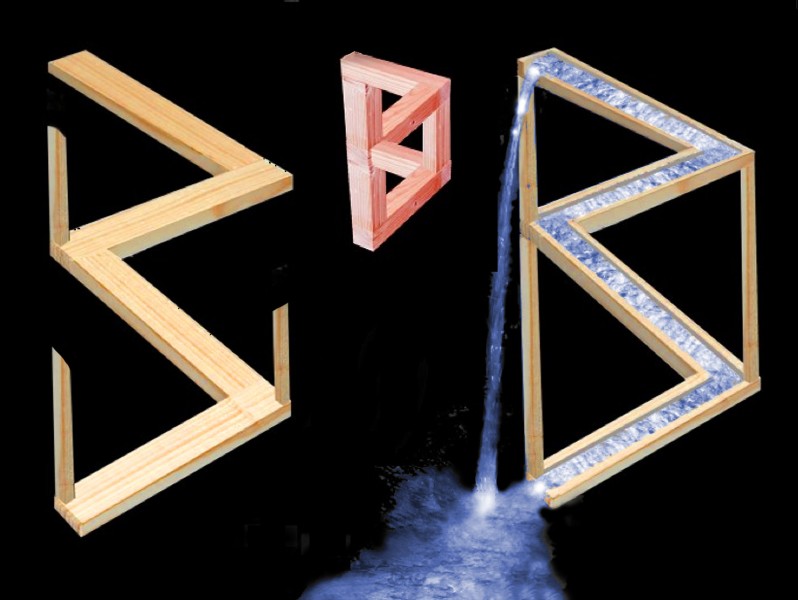
Another great representation of Escher fascinating use of impossible objects is his artwork which he titled *Convex and Concave.* In this piece we see two sets of stairs that are almost identical in size and stature. The image is filled with many different things happening at once, Upon viewing the lithograph, you notice many of the pieces included in the image have an identical piece that can be found somewhere else in the image. In the bottom corners of the composition, we have two different men climbing individual ladders onto a flat surface. Above, we have a set of stairs leading to a higher balcony which we see a man playing some sort of instrument and a woman carrying a basket. Near the bottom of the image in the middle we see two lizards climbing onto a small staircase. If we break the image down into separate sections, we can get a better understanding of what we are looking at. “M. C. Escher suggests that the drawing be split into three vertical strips. The left and right side are both possible, but they are opposites. The middle part could match the left side, or it could match the right side, but it cannot match both at once. For example, the left lizard hangs from the inside corner of the ceiling, while the other lizard is on the outside corner of steps that a human could walk on. However, the two interpretations can’t both be true” (Impossible). This composition is unique because it is showing us one image but with two different perspectives. If we look at each perspective separately, the structure of the building is possible to construct. But if we try and combine both perspectives into one image, we are left with architecture that is impossible to construct.

While in the process of making this print, Escher seemed to have trouble finding an even balance between simple and complex. He writes friend Bruno Ernest saying, “I spent more than a whole month, without a break, pondering over that print, because none of the attempts I made ever seemed to turn out simple enough. The prerequisite for a good print-and by ‘good’ I mean a print that brings a response from a fairly wide public quite incapable of understanding mathematical inversions unless it is set out extremely simple and explicitly-is that no hocus-pocus must be perpetrated, nor must it lack a proper and effortless connection with reality” (Ernst). The many hours spent on this piece seems to have paid off because we are left with very distinctive prints that exemplifies extreme detail and offers its viewers a perspective that is only unique to the work of Escher.

*Waterfall* is another wonderful piece by Escher that illustrates an impossible structure that could not exist in the real world. In this piece, we see a zigzagging structure that seems to be carrying water up to the top where we then see a waterfall bringing the water back down where the process is then repeated. Around the structure we see two buildings, one to the left of the waterfall and the other to the right. Also in this picture we have a watermill that seems to be pushing the water that is falling from the waterfall up the zigzagging structure. In the background of the composition is some sort of rock structure where we see some plants growing. The lithograph is in black and white.  The lithograph *Waterfall* show very similar characteristics to the Tribar created by Penrose years before.

In February of 1958, R. Penrose published his soon to be monumental piece titled *Tribar* (Ernst)*.* Although Penrose labeled this structure as a three-dimensional rectangular structure, it was certainly not the projection of an intact spatial structure (Ernst). The effectiveness of the Penrose triangle is all dependent on how it is being viewed. The optical illusion of the triangle only works if it is viewed from a specific perspective. Escher uses this triangle in his drawing of his lithograph *Waterfall*. Escher essentially created a visually convincing perpetual-motion machine. It's perpetual in that it provides an endless water course along a circuit formed by the three linked triangles (Becerra). Escher came across this piece from Penrose just when he was engaged in constructing impossible worlds. This tribar gave rise to the lithograph *Waterfall* (Ernst).

Below, we see the *Waterfall* image stripped down. If we look at the image on the right side, we it appears that the water is flowing uphill and then pouring down to the bottom again. But if we then compare the right hand image with the small middle image, we realize that the configuration is just two tribars, one on top of the other. The placement of the vertical posts that are connecting the structure in the lithograph gives the piece it's impossible prospective. If we saw off the post connecting the structure so that our brains do not connect them to the zigzagging channels, the whole configuration seems to recede horizontally as it should, instead of stacking up impossibly (David). The surroundings of the strange waterfall strengthen the illusion we are seeing such as the enlarged mosses in the garden, and the polyhedrons perched on the top of the towers (Ernst).



One of Escher greatest works with impossible geometries was his work in creating the lithograph *Belvedere.* In this composition we see a three-story building where the top two floors look very similar in appearance. The top floor is supported by columns that are twisted between the levels (Ernst). One the very bottom floor, we see a checkerboard looking design. We then see stairs leading up to the second floor. On those stairs are two individuals which appear to be females. On the second floor we see another individual looking out over the balcony. Also on the second floor we see a ladder that is leaning against the top floor. On that ladder we have two individuals climbing up to the top floor. Lastly, on the top floor, we have one person looking over the balcony to the right. Upon scanning over the image, it will appear that the two floor are parallel to each other but upon further examination, you will notice that the ladder that is actually inside the bottom floor but outside the top floor. Lastly, we see what seems to be a prisoner locked away in the bottom of the picture. This type of architecture is quite impossible. Although this image certainly looks as though it is the projection of a building, it is very clear that no such building as the one being illustrated here could ever exist (Ernst). In order to understand this image, it is important to understand how it ties into the Necker Cube.

A Necker cube, named after Louis Necker, is defined as, “a line drawing showing the 12 edges of a transparent cube, so that it can be seen alternately facing in two different directions: an example of an ambiguous figure” (Necker). This cube presents the viewer with two mental interpretations, each being valid. The viewer often times only see’s one of the interpretations the first time, but after time or prompting will begin to see the second one. “When they attempt to simultaneously see the second and first interpretations, they suddenly cannot see the first interpretation anymore, and no matter how they try, they simply cannot encompass both interpretations simultaneously- one occludes the other” (Ambiguous). This idea is the basis for the building in *Belvedere.* Just like the Necker cube, we get two different realities that can be observed within it. The bottom floor gives us one perspective that is seen pretty clear upon looking at the image. The same is to be said about the top floor. This perspective is seen pretty clearly it we are only looking at that floor separately. If we try to look at both floors at once, we notice how impossible this figure is. If we combine the columns, the top floor and the bottom floor, we can see how similar in appearance Belvedere is to the Necker cube. An image of the Necker cube is actually included in the lithograph. We see a boy holding a Necker cube at the bottom of the image sitting on a concrete bench. Escher was deeply inspired by this cube and fascinated with the mathematics behind impossible geometries and is why much of his work is centered on mathematics and perspectives.

One of Escher’s more famous pieces is his work in *Ascending and Descending*. In this lithograph we see a big building and stationed on top is a flight of stairs that go around in a circle. We see workers of some sort going up and down the stairs in a circle. The lithograph is black and white with no background image. This image was inspired by another impossible object called Penrose Stairway (Penrose). Although this stairway cannot be perceived in three dimensions, the paradox is often times missed by people at quick glance (Penrose). The stairs appear to be continuously going up as the circle goes around, but never increase in height at the workers go around the building. This architecture would be impossible to portray in real life. “Escher used conflicting proportions in his work to create the visual paradox. It makes sense to us because our brains are focusing on different regions in the picture. Each of those regions makes sense, but taken together they create an impossible situation” (Arun). Our minds have a hard time making sense of this image as we can understand how they can be going up but never increase in height.

There are very many similarities between Escher’s *Belvedere* and his *Convex and Concave* piece. The first and most obvious connection is the fact that they both display architecture that would be impossible to construct in real life. We also notice that the two separate realities can be observed within each composition (Ernst). We also see how Escher used a similar theme when deciding what objects and people to include in his compositions. Although sometimes it may go unnoticed, the use of people and objects help portray the illusion given off in both the images. It also makes the perspectives more difficult to notice at times. Another similarity of the two lithographs is the use of black and white as main colors of the lithograph. The use of these colors seems to add to the effectiveness of the illusion and make it more difficult to realize the impossible perspectives being portrayed in both images.

 If we compare Escher’s *Belvedere* piece to his *Waterfall* piece, we immediately see a relationship between to the two structures. From glance, you will notice that the columns in both the compositions seem to be the main focus in the image. They are supporting each of the structures, while at the same time are the focal points for the illusion created in the art piece. Both of these images by Escher were also influenced by two very important impossible objects that played a major role in the art of Escher. Both the Necker cube and the Penrose Triangle are the basis for the illusion being portrayed in both compositions. Escher shows great detail in both of these lithographs while also keeping it simple by not included any color and keeping both images black and white. Both of these images show impossible perspectives and geometries that are very unique.

Throughout Escher’s early years, one would have not expected his to become the artist and scholar he was known to be. Although he was to repeat a grade twice, Escher’s father believed his son needed a scientific background so Escher was sent Haarlem to study at the school of Architecture and Decorative Arts under the architect Vorrink (Ernst). His studies with Vorrink were short lived however and Escher changed courses and de Mesquita became his main teacher. A few years after leaving school, Escher and his wife traveled Spain, where much of Escher’s inspiration for work with perspective would come (Ernst). In Escher’s lithograph titled *Drawing Hands,* he illustrates impossible objects by using a three-dimensional perspective to draw a two-dimensional perspective. In Escher’s piece titled Convex and Concave, Escher suggests that the drawing be split into three vertical strips. The left and right side are both possible, but they are opposites. The middle part could match the left side, or it could match the right side, but it cannot match both at once (Impossible).  This composition is unique because it is showing us one image but with two different perspectives. If we look at each perspective separately, the structure of the building is possible to construct. But if we try and combine both perspectives into one image, we are left with architecture that is impossible to construct. In Escher’s lithograph *Waterfall,* he was highly influenced by R. Penrose and his tribar triangle. This was the basis for the effectiveness of his illusion. Similar to the Lithograph *Waterfall*, his drawing *Belvedere* was also inspired by an impossible object. The Necker cube was the basis for this perspective. This lithograph uses its columns and Necker cube shape to portray an impossible image. Lastly, Escher’s lithograph titled *Ascending and Descending* uses the impossible object called the Penrose Stairway to illustrate the illusion of a group of workers that appear to be all traveling up a flight of stairs, but are actually just going in circles.  All of these images share common characteristics. All of these lithographs drawn by Escher portray impossible realities. They are also common is color and all are drawn with extreme detail. Escher’s success with impossible perspectives and geometries has helped build his legacy as an artist. His revolutionary style was unique and is influential on many artists today.

Work Cited

"A quote by Akong Rinpoche." *Goodreads*. N.p., n.d. Web. 26 Feb. 2017.

"Ambiguous Illusions." *Ambiguous Illusions*. N.p., n.d. Web. 26 Feb. 2017.

David. "Escher’s “Waterfall” Explained." *Optical Illusions*. N.p., 11 Aug. 2008. Web. 26 Feb. 2017.

Ernst, Bruno, and M. C. Escher. *The magic mirror of M.C. Escher*. Köln: Taschen, 2015. Print.

Keilholtz , Jeffery. "What Is the Meaning of Escher's Drawing Hands?" *Local*. N.p., n.d. Web. 26 Feb. 2017.

Poole, Steven. "The impossible world of MC Escher." *The Guardian*. Guardian News and Media, 20 June 2015. Web. 26 Feb. 2017.

"The Impossible World of M. C. Escher." 123HelpMe.com. 26 Feb 2017

  <http://www.123HelpMe.com/view.asp?id=28639>.