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Investigation of Sculpture and The Whimsy of Control

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INVESTIGATION OF SCULPTURE
AND
THE WHIMSY OF CONTROL

By

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March 2005
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Introduction

Through this thesis “Exploration in Sculpture” I intend to investigate the expressive impact caused by movement, sound and industrial machinery upon the viewer. This search involves experimentation with industrial objects and the materials and sounds created during production. My intentions are to explore the moods and feelings caused by this combination of machine imagery, sound and movement.

Machinery

Machine imagery has always been an intriguing force in my aesthetic. I attribute this to being surrounded by industrial objects at an early age. I believe that there is a certain feeling of life in industrial objects. This human quality was especially evident in early 20th-century machinery. Early 1920s machine shops operated 20 to 30 machines at a time using one main drive shaft, which would connect to every machine in the shop. The machine shop would have operated this way by using a variety of leather belts from the primary power source. Working from this early inspiration in my research I experimented with five motorized relief sculptures. (fig. 1-6) In this series of works, I used the industrial concept of belts to move pulleys, which were then integrated into the sculptures. The pulleys had wires connected to their outside edges. The wire on the edge of the pulley would act like a primitive weed whacker. This primitive sporadic movement created a humanistic feeling much like a flailing arm. In creating these, I found a strong humanistic quality in this belt drive system. This discovery made a significant contribution in my final thesis work.
The sounds of industrial machinery operating has rhythmic patterns. The sound of a powerful diesel engine that is used in locomotives has influenced many songwriters from Robert Johnson to Johnny Cash. I found inspiration in exploring the rhythmic patterns of functioning industrial machinery. In my research I moved beyond my formal training and explored rhythmic patterns within operating industrial machinery and the physics of sound waves created by these machines. On this quest I discovered the physics of standing wavelengths. Standing wavelengths are sound waves or frequencies that are created inside specific lengths of tubing after being struck by an object. Through this discovery I was able to create any of the 12 notes that make up western music. With the ability to create specific tones and the application of my musical background, I returned to my earlier research of the motorized, relief sculpture studies and toys from my childhood to create contraptions that would make industrial machine rhythms.

As a child my parents bought me a high-tech remote-control car because they thought it would help fine tune my motor skills. In actuality, the remote-control car became more significant. As I got older, I continued to play with these high-tech remote-control cars. These RC cars were not obtainable at local toy stores, but were only available at specialized hobby shop. From there you had to assemble this complex machine correctly, otherwise, you had a very expensive paperweight. It wasn’t until I was in my late twenties that I appreciated what came from using and building these RC cars. Playing with these cars taught me about basic electronics like soldering, voltage and how
A.M. frequencies work. I learned how to work with gears, motors, tires, and suspension and developed the basic understanding of how to get things to move… and move fast. Now, years later, I look to these RC cars and vehicles as preliminary research. These vehicles provided a meditative time for me to personalize how I make things move.

**Control**

Through my research, I discovered that there were three contributing factors in my work that I did not originally realize were involved. Humans, machines and nature all possess comparable elements control. For example when a human is interacting with a computer there are times that the computer will start to become troublesome and almost seem like it has a mind of its own. It might even seem like the computer is getting upset or emotional. The user will also get frustrated and upset.

These three forces, humans, machines and the physics of nature interact with each other; no single one has complete control over the other. In fact, in most situations these forces overlap. While exploring the topic of control I thought of three scenarios. In the first scenario a car is going down a road on a sunny day and there are no problems. Both the car and driver reach the destination safely. It might be said that the human and the physics of nature are controlling the vehicle. In the second scenario, the car overheats before reaching its destination causing both financial and time inconveniences to the driver. The machine and the physics of nature exert their control over the driver. In the final example, a bad snowstorm causes the car to slide off the road. It would seem that the physics of nature has controlled both car and driver.
From this perspective and this new found information it was evident to me that I could create objects that the viewer could interact with, but not fully control. This would give the viewer the feeling that the sculptures have a humanistic quality or an independent identity, separate from the viewer. Therefore, by using the physics of centrifical force, sound and industrial machine imagery I could create dynamic sculptures that would have as many humanistic idiosyncrasies as the viewer or operator.

**Exhibition**

These examples have illustrated the thought processes that led to my final thesis work which uses elements of sound, movement, industrial machine imagery and viewer control. The exhibition space in which I chose to show my thesis work was at the Rochester Museum & Science Center in Rochester, New York. I chose this site because it would allow me to get more viewer participation than any other available site at that time.

My thesis show consisted of three sculptures. The first of the three is entitled “Windless Chimes“. (fig 7) “Windless Chimes” stands approximately 4’ x 5’x 6’. Two posts rise off the base. At the top of these posts is a polished metal car part. From this center point, four horizontal aluminum rods protrude at 90-degree angles from each other. At the end of each rod is a wire from which hangs a hollow aluminum tube. These hollow tubes act as chimes. The various lengths were calculated by using a basic standing wave length equation to produce a C chord when struck together. From the bottom of each chime, a polymer-based line loosely connects the chime to the center shaft. The center shaft contains the drive shaft that propels the four horizontal rods in a circular motion. As
Centrifugal force increases it pushes the chimes away from the center shaft. The polymer lines on the top and bottom keep the chimes in a parallel plane with the center shaft.

Spring-like wires with wooden balls attached to the end are connected to the center shaft. When the chimes are in motion, they strike the balls and create an industrial machine rhythm. The center shafts are attached by using slightly larger aluminum tubing and a disk, which is bolted to the base. Peculiarly, protruding out of the slightly larger aluminum tubing is gray and black fur to add an organic animal quality to the piece. The top base is made from aluminum diamond plate with $\frac{3}{4}'$ molding. A wooden white 4' x 5' x 3' base elevates the slightly smaller aluminum diamond plate base. The white base serves as a visual reference to a pedestal, which lends the sculpture a sense of preciousness and precision. The entire sculpture is encased in a clear plastic.

In front of all three sculptures is a 2' x 3' wooden box. The box is painted white and contains all of the electronics for the control panel. On top of the box is an aluminum cylinder 3” in diameter. This supports the control panel, which is also cylindrical and topped by a flat, wooden disk. On “Windless Chimes” the disk contains two knobs, which control the speed of the rotation of “Windless Chimes.”

The second and third sculptures are titled “Controlling Centrifical Force 1 and 2”. (fig 8) They are constructed in almost the same manner as “Windless Chimes.” “Controlling Centrifical Force 1 and 2” stand approximately 4 x 5’ x 6’ with one post. Raised off the base at the top of these posts is a polished metal car part. From this center point, four horizontal aluminum rods protrude at 90-degree angles from each other. From the end of each rod is a propeller from a model airplane. The Center shaft contains the drive shaft, which propels the four horizontal rods in the circular motion. The remainder
of these pieces is the same as the first one, except that each has only one control knob, which controls the speed of the piece.

**Influences**

Many outside forces and two significant artists have influenced the sculptures that I’ve created. One of the artists that influenced me in making this work was Michael Hayden. Michael Hayden creates public works of art that are interactive and control one’s environment. One of the pieces that had an impact on me is currently installed in O’Hare Airport in Chicago. The walkway is an underground tunnel stretching from the parking garage to the United Airlines terminals. As you come down the escalators, you start to hear trance-like music that makes you feel like you have entered a science fiction movie. When you finally get to the bottom of the escalator, in front of you are four moving walkways, with two moving in each direction. As you get to the walkway, you realize that the multiple tubular neon lights that are shaped as a long sound wave are lighting up in a particular pattern. This pattern gives you a strong feeling of movement. This movement gives the effect that you are traveling through the tunnel in a high-tech environment. This piece has sounds and lights which causes each viewer to come away with a different impression or mood.

My piece, “Windless Chimes”, causes a similar feeling. As you approach “Windless Chimes” it creates a very peculiar high-tech industrial sound. The environment is controlled much like Michael Hayden’s walkway in that we both use sound to create mood and feeling. I found that we both look to machine imagery, sound and movement for creative inspiration.
Another artist that influenced these sculptures in terms of craftsmanship was Richard Mawdsley. Richard Mawdsley was my undergraduate professor at Southern Illinois University at Carbondale. Richard was the driving force for me to perfect my craft as a goldsmith. It was his standard that everything should be tight with crisp clean lines and was very well made. He helped me to recognize my love of machines and tools. We would often talk about machines, tools, cars, and our love for metal. He was extremely influential in my creative path in sculpture.

**Conclusion**

Through this journey and exploration I have discovered a deeper side of feelings and moods created by machine imagery, sound, movement and control. Looking at the full picture of machine imagery, sound, movement and control there are many facets and layers that are woven together. I started this thesis with the thought that machine imagery, sound and movement needed to be brought together to create a humanistic machine. But through my investigations I found myself asking the question, who actually controls whom? This question led me to investigate the moods and feelings of control. It appears never-ending as I continue to investigate the moods and feelings of machine imagery, sound, movement and controlling elements. As I keep working on my art, the driving force is to question these thoughts that have manifested in this thesis.