

LUND UNIVERSITY

DRONE WARFARE:

Digital

WAR IN THE AGE OF MECHANICAL REPRODUCTION

A MASTER'S THESIS FOR THE DEGREE *MASTER OF ARTS* (TWO
YEARS) IN VISUAL CULTURE

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SPRING SEMESTER 2012

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ABSTRACT

In this paper I explore the scopic regime of drone warfare as the production of the image as a site of meaning. The first part of the paper I describe what a drone is, through its technical specifications and through detailed reports on actual drone attacks in the recent ‘War on Terror.’ I highlight some of the contemporary debates surrounding its use and how drone technology has transformed the mechanization of war. In the second part of the paper I relate drone technology to a historical framework, specifically referring to the work of Walter Benjamin and his seminal essay, ”The Work of Art in the Age of Mechanical Reproduction.” This moves through a discussion of the relationship between vision and war during the First World War and political implications of representations of mechanized warfare during the aesthetic movement of the Futurists. The final section of the paper approaches specific aspects of drone technology that depart from mechanized warfare into a digital realm. These aspects connect to the development of artificial visual intelligence programs and the primacy of visual pattern recognition being increasingly utilized in drone surveillance. I highlight concepts in the work of Paul Virilio in his book, “The Vision Machine” such as *telepresence* and the *industrialization of vision*, in examining the contemporary implications of drone technology.

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INTRODUCTION: WAR AND DESIGN

Presently, at the beginning of the 21st century, we find the twilight of the analogue era and the vast expansion of digitization in all realms of reality. The world of things has become dematerialized and ubiquitous objects are fetishized. A digitized standard is becoming normalized to the senses, whether in images or sound. The processes of industrialization pervade all areas of information production. This study is about the ways these societal aspects of the digital revolution have been dialectically developed in the realm of warfare. The source of inspiration for this study began with a personal experience of modern warfare. Two planes, transformed into missiles, crashed through the two towers down the street from my home. The twin skyscrapers had always towered over the city and life below, distanced through their height, yet ever present in the casting of their shadow. In the days of the aftermath of 9/11, I found myself huddled in my empty apartment under the covers, and rolling the television stand into my bedroom. It felt as though the only safety could be found in the narrative that was streaming from the screen. I was looking for a context to place the horrible destruction that was occurring outside my window. The only contact with reality seemed to emanate from the screen. And that's when I saw it, the replay of the moment the planes crashed. This moment of awe struck, potent silence of impact. It could not be heard through the distance from which the camera filmed the event. It was a purely visual phenomenon.

On the ground, I had experienced mass panic. My first knowledge of the event was the sound of Chinese sweatshop women, from across the street, screaming, alerting me to the window. When I looked out the frame of my window I saw masses of people walking up the perpendicular streets to my apartment. I saw droves of people in the streets, all walking the same direction, uptown. Some people were pointing towards the sky, in the direction of downtown. I had expected a space ship. When I reached the streets and looked at what everyone was pointing to, I saw the towers still standing in flames as bodies were falling out of the windows. Then the great rumble of the falling towers and panic struck, as we all ran.

Afterwards, the proliferation of personal photographs of 9/11 and the aftermath became an exhibit in downtown New York, titled 'A Democracy of Photographs.'

Hundreds of photographs were displayed covering all perspectives of the event and creating a mosaic of images that pieced together the experience on the ground. The exhibit also became exposed the reality of 'everyman's a photographer' of the digital cell phone camera age, and the prevalence of image recording devices in today's public spaces.

Yet, there existed a fundamental gap between the experienced event and the reproduced image. The single image of the moment of impact became branded and solidified and entered the social imagination as a symbol of the age of contemporary warfare. The replay of the image had the echo of the real event, being relived in the space of a new era, marked by its events. It became the weapon of the spectacle. This image of impact would far outreach the initial act, and become placed out of context, this "targeted image, the intensity of definition singling out specific areas, and the context mostly disappearing in a blur."¹ It was not only the transformation of a domestic plane turned into a missile, but also the transformation of the screen itself as a weapon, through which the image of destruction was exhibited. It is understood that the events of 9/11 were crafted to be reproduced, and watched by not only the people experiencing it directly, but more importantly by the world at large, through the screen to be exhibited to the masses. It marked the beginning of a new era, not only in warfare and the connection with representational technologies, but in the way, space and time were to be consumed through the image. It marked a shift in how reality was altered through the perception of the image. It triggered images themselves to act as a weapon. The events of 9/11 became a site of meaning upon which technology, politics and visibility crossed, where not only the plane, but also the systems of representation were hijacked for the power of the attackers.

The image became a weapon in the context of 9/11. In drone technology war is being fought through its image. The technological advancements in visual reproduction have been honed to function as weapons in war. Vision, technology and war have been inextricably intertwined since war was mechanized. Historical context adds insight to the role of visibility in warfare. At the turn of the 20th c, also an era of

¹ Virilio, Paul, *Vision Machine*, Indiana University Press, London, 1994, p. 14

great change due to technological advancements, the First World War brought about the first experience of mechanized warfare. The First World War, like the contemporary war, introduced new technology in warfare, and was unequally utilized by one side of the conflict. It introduced trench warfare and the machine gun as well as gas warfare, all of which transformed the subjective experience of reality. The horrific experience of war was the source of a social imagination that could author the events of the Second World War, what Omer Bartov describes, as a “baptism by fire.”² Philosophy, art and society and the belief in the value of social institutions were all transformed by the experiences of the First World War. An aesthetic movement that responded directly to the mechanized world after the Industrial Revolution and influenced politics and war was the Futurists. The theories behind the movement were stated in *The Futurist Manifesto*, authored by Filippo Tommaso Marinetti. Futurism represented a new mode of existence of modern life inspired by the technological revolutions of its time as well as giving visual language to the mechanism of war. Their explorations in the visual language of machines connect to the syntax of the contemporary dynamics at play in drone technology.

Reading the philosopher Vilem Flusser’s book, *“The Shape of Things,”* gave me insight into the origin of objects we use in our daily lives. These objects bring about convenience and efficiency in our daily routines. Yet, many of these objects are a result of design introduced by the Industrial Military Complex. Flusser’s insights were a catalyst to guide this study in focusing on the design and technology of warfare today, to imagine what convenience and efficiency would look like in the future. The recent phenomenon of cataloguing, photographing and archiving the objects of design of recent history, with retrospectives coffee table books on everything from chairs to kitchen wares, I recognized that there is very little popular culture reference into the design of warfare. Is it perhaps because the success of such design brings about mass death rather than the ability to cook a nice meal? How does the convenience and efficiency made for killing meld with the daily design of our lives?

² Bartov, Omer, *“Murder in Our Midst: The Holocaust, Industrial Killing, and Representation,”* Oxford University Press, New York, 1996, p. 25

Drone warfare has increasingly become a reoccurring topic in the headlines of daily news stories. Drone technology has been one of the most classified technologies of war, and thus its existence and how it works, has been shrouded with myth, controversy and denial. Yet, the use of drones has been a part of war for more than a decade now. Drone technology is the result of a technocratic ideal of warfare, realized in the form of a remote controlled surveillance and killing machine. The dependency on drones by the military is only increasing, expressed by the fact that all development of manned aircraft has stopped. The Long War Journal states, in Pakistan, “There have been 292 strikes total since the program began in 2004; 282 of those strikes have taken place since January 2008.”³ President Obama has only publically recognized these strikes in January of this year.

The reality of the steady rise of drone warfare has been part of the quotidian life in areas where they have been most employed. In Northern Pakistan, among the residents of North Waziristan, Pir Zubair Shah reports that, ““I will drone you” has entered the vocabulary of day-to-day conversation as a morbid joke. The mysterious machines buzzing far overhead have become part of the local folklore. “I am looking for you like a drone, my love,” goes a romantic Pashto verse I've often heard the locals recite.”⁴ The tribal areas in Northern Pakistan have proven to be a perfect testing ground for the U.S military and the CIA in practicing how to most efficiently use drone technology and the direction it wants to progress. The areas are mostly inaccessible by the media and human rights groups. They are set apart from the center of power of the country, “a place where violations of international law and civilian casualties go mostly uninvestigated.”⁵ Although the central structure of drone technology relies on surveillance, and that of vision, the effects of drone warfare have largely eluded being documented and exposed to the general public. Because drone strikes occur in obscure areas, only the people living in the villages affected and of course, those that are gazing upon them through the drone surveillance system actually

³ Roggio, Bill & Mayer, Alexander, ‘Charting the data for US airstrikes in Pakistan, 2004 – 2012,’ *The Long War Journal*, retrieved 15 April 2012, <<http://www.longwarjournal.org/pakistan-strikes.php>>

⁴ Shah, Pir Zubair, ‘My Drone War,’ *Foreign Policy*, March/April 2012, retrieved 18 May 2012, <http://www.foreignpolicy.com/articles/2012/02/27/my_drone_war>

⁵ *ibid.*

know the facts surrounding a drone strike. The myths of their use and effect therefore proliferate, and are utilized in the Pakistani media as a political weapon against the U.S.

This study into drone warfare is to recognize the very pervasive existence and proliferation of the U.S covert drone war operations. The mechanics by which a drone operates as well as the vast communications network it creates, is explored as a site of meaning production, in the 21st century. It is a study of the tools of war melding with visual reproduction technology and utilized in the creation of contemporary landscapes, imagined and real. Warfare has been at the forefront of technological innovation. The information age has thus far seen the dematerialization of objects and senses. Through the process of the scopic regime of drone technology, the bodies of those in battle and those that are being killed become dematerialized. This study into drone technology uncovers how the camera influences and intervenes in the realm of war, engaging in primary conceptions of threats to humanity. The structure of drone technologies is based on visual primacy as a weapon.

Drone aircraft, known as Unmanned Aerial Vehicles (UAV) can be equipped with hellfire missiles, and therefore have multi capacity use for combat, but the primary use of UAV's are for intelligence, surveillance and reconnaissance missions (known by the military as ISR). Military developments in drone technology are all focused on advancing the capabilities of vision, both for the machine and of the machine. UAV use has created a situation where the war is being increasingly fought through a visual reproduction of the battlefield. The social transformations resulting from technologies of visual reproduction has been a source of study in Walter Benjamin's seminal text "The Work of Art in the Age of Mechanical Reproduction." His study, written in 1936, responds specifically to the scopic regime of photography and film. His insights illuminate aspects of drone technology that contemporary commentators operating on the myth of technological progress, tend to miss. Journalists and scientists have described features of the advancements of drone technology, yet the process of reproduction in intercepting the creation of meaning, has been largely overlooked.

Research for this paper was done by looking at historical perceptions of technology and war, towards its influence to build and destroy notions of society, and its **influence over the social imagination through the study into aesthetic movements.** That research was combined with technological evidence found in the latest reports on drone technology in scientific journals such as ‘Aviation Week.’ It was also especially dependent on the daily unfolding narrative in news reports on drones, about the proliferation of surveillance technologies, the role of drones in domestic popular culture and ofcourse the reports on drone attacks and its role in conflicts between nations. Walter Benjamin’s text “*The Work of Art in the Age of Mechanical Reproduction*” served as an underlying guideline in examining the camera technology of drone surveillance systems. As a philosopher that could decipher historical and cultural context from the material objects of his immediate environment, Benjamin proved a source of inspiration not only through his written text but his methods of observations, in holistically combing the seemingly disparate elements of past and present, and of theoretical concepts with daily news headlines. Paul Virilio’s work, was also a basis to this study. Understood as an intellectual descendent of Benjamin, his insights provided integral concepts to approach the digital aspects and contemporary context surrounding drone technology.

The invention, advancement and proliferation of weaponry, promulgated by each war, inherently embody the belief of progress through technology. The 20th century has been filled with war and technological innovation, the Industrial Revolution and the corresponding wars of the First World War and the Second World War, to the post industrial or information age and the neo colonial wars fought in the name of conflicting ideologies. Walter Benjamin questioned the taken for granted, idea of human progress found through technology, and displayed these doubts precisely. For not only does technological achievements in war account for precision, efficiency, convenience and speed, it is also simultaneously responsible for the industrial killing of whole human populations.

CHAPTER 1: WHAT IS A DRONE?

1.1 THE THEATRE OF WAR

Military terminology includes the term the “theatre of war” or more recently, “in-theatre” referring to those that are on the battlefield, in active combat. The use of this term has its literary foundations in describing the visual landscape of modern wars, and has thus been appropriated by those who participate in war, with its preoccupation with death, (one’s own and one’s active participation in the death of others) as an existence separate from reality. “Seeing warfare as theater provides a psychic escape for the participant: with a sufficient sense of theater, he can perform his duties without implicating his “real” self and without impairing his innermost conviction that the world is still a rational place.”⁶ War as theatre has reached an age of digital reproduction, through the system of drone warfare. Through streaming realtime footage of the battlefield on multi high definition screens, war is fought by its combatants, through a reproduction, where dependency on the lens has replaced physical context and presence.

Progress in modern technology since the industrial revolution has been embedded with the development in warfare, as a site of technical innovation, which nations depend on for their own survival. The role of mechanical reproduction technologies such as photography and film have been progressively utilized to transform and create social imaginations, sometimes in the function of nation building as well as producing images that represent a nation’s destruction. The development of a robotic machine engaged in both the surveillance and death of others, is an extension and culmination of technological warfare. The mechanics of drone warfare is understood as an inevitable and sufficient answer to the contemporary challenges of the battlefield in the modern era, where simply locating the enemy is one of its most difficult tasks. The ‘psychic escape’ in the theatre of war has reached a technocratic ideal, which incorporates the bypassing of democratic processes in declaring war. The rise of drone warfare has made actual the separation of ‘the psychic escape’ by

⁶ Fussell, Paul, *The Great War and Modern Memory*, Oxford University Press, New York, 1975, p. 192

replacing reality with its reproduction, while also digitally reproducing the space and time of the events of war to be able to directly engage in combat through its reproduction. This contemporary “theater of war” positions the role of vision as the prime weapon of speed and accuracy in 21st century warfare, separating the body from both the physical realities and contextual presence of the battlefield. This technological disembodiment made possible through the scopic regime of drone technologies has transformed the way war is treated, fought and imagined.

The attacks of 9/11 in New York and Washington altered the landscape of war and warfare, transforming domestic planes into missiles and the spectacle of media images into an enduring weapon. The images of the burning towers of the World Trade Center have become branded in the social imagination, as a moment where cinematic representations of violence and its actuality melded into one. After 9/11, terrorism was classified as an act of war rather than a crime. So, began the “War on Terror” heralded by the then president of the United States, George W. Bush, against an enemy, whose identity was defined by a conflicting and broadly defined ideology, termed as an emotion, rather than bound to any specific nation state. This transformed the logistics of war and the boundary-less landscape of the “War on Terror” provided an ample opportunity to develop and implement the use of drone warfare. Surveillance over the inaccessible terrain of enemy locations was becoming as much of a weapon of dominance in war as direct engagement. Employing ground troops equaled the insurance of a loss of lives, altering public support for war, and therefore obstructing the political goals of the administration. Drone warfare has become a political and technocratic solution by way of the scopic regime of film becoming inextricably intertwined with a militaristic function, allowing for engagement without risk.

The first modern drone, called the Pioneer, utilized for real-time surveillance and electronic warfare, was developed by Israel during the 1973 Yom Kippur War against Syria.⁷ With the use of drone technology Israel was able to successfully neutralize the Syrian air defenses without a single downed pilot. The unequal loss of

⁷ Azoulai, Y, ‘Unmanned combat vehicles shaping future warfare,’ *Globes: Israel’s Business Arena*, 24 October 2011, retrieved 18 April 2012, <<http://www.globes.co.il/serveen/globes/docview.asp?did=1000691790>>

life incurred by one side, insured the inevitable rise of drone warfare in military technology. The first use of drones for surveillance capability, by the United States was during the 1991 Gulf War. It is reported that, "At least one UAV was airborne at all times during Desert Storm."⁸ During the Gulf War, the Pioneer was used primarily as long distance vision for targeting and mapping an area for steering missiles. It also provided live coverage during and after attacks to assess the damage. As was reported at the time, "During the last week of the Gulf War, thousands of Iraqis surrendered...One of the most unusual surrenders took place when a Pioneer remotely-piloted vehicle droned above the battlefield, surveying potential targets. Five Iraqi soldiers waved white flags at its tiny television camera. It was the first time in history that men surrendered to a robot."⁹

The conflicts in Afghanistan and Iraq, moving into Pakistan and Yemen, have seen the increased proliferation and dependency of drone technology to fight and envision the war. Drone warfare is seen as the most effective weapon against the al-Qaeda network.¹⁰ "Since the Sept. 11 attacks, the hours the Air Force devotes to flying missions for intelligence, surveillance and reconnaissance have gone up 3,100 percent, most of that from increased operations of drones."¹¹ The Pentagon has reported to currently have 7,000 aerial drones. Since 2006, there have been 2,247 leaders and operatives from Taliban, Al Qaeda, and allied extremist groups killed by a drone.¹² The recent assassination of Osama Bin Laden in Pakistani territory by Navy Seal Team 6, was due to his compound being spied on for weeks previous to the strike, by drones. Drone use is currently the major point of contention and bargaining tool in relations between the United States and Pakistan. Drone aircraft are known as, Unmanned Aerial Vehicles (UAV), Unmanned Aerial Systems (UAS) or Unmanned aircraft (UA).

⁸ 'weapons: drones (RPV's),' *Frontline*, retrieved 4 April 2012, <<http://www.pbs.org/wgbh/pages/frontline/gulf/weapons/drones.html>>

⁹ *ibid.*

¹⁰ Predator Drones and Unmanned Aerial Vehicles (UAVs), *NYTimes*, 20 March 2012, retrieved 25 March 2012, <http://topics.nytimes.com/top/reference/timestopics/subjects/u/unmanned_aerial_vehicles/index.html>

¹¹ Surveillance and Microaviation, *NYTimes*, retrieved 25 March 2012, <http://topics.nytimes.com/top/reference/timestopics/subjects/u/unmanned_aerial_vehicles/index.html>

¹² Roggio, Bill & Mayer, Alexander, 'Charting the data for US airstrikes in Pakistan, 2004 – 2012,' *The Long War Journal*, retrieved 15 April 2012, <<http://www.longwarjournal.org/pakistan-strikes.php>>

Drone aircraft are named by what they are not, ‘unmanned,’ a fact that expresses how little is understood about their implementation and the effects. A widely used drone by the U.S military and the CIA is known as the Predator. Its military code is MQ-1, or RQ-1. The ‘Q’ refers to all unmanned aircraft, while the ‘R’ refers to reconnaissance and ‘M,’ multi-functional, meaning including combat capabilities, employing hellfire missiles. The drone aircraft itself is apart of a complex and industrialized information system. The vast communications network that involves the simultaneous gaze of multiple video analysts on a single video feed, is part of the system of vision of drone warfare, representing what the philosopher, Paul Virilio has described as the *industrialization of vision*.¹³ The gaze is no longer employed by a single dominant entity, but rather allocated to multiple separate components, each of which does not hold responsibility for the final decisions based on their visual analysis, and each of which only playing a small cog in the machine of the eye of command.

1.2 THE AFGHAN TRAGEDY

In an article for the Los Angeles Times, titled “Anatomy of an Afghan War Tragedy” David S. Cloud reported on a U.S military drone attack on a convoy in Afghanistan that lead to the death of 15 civilians, and many more wounded including women and children. The events of the story unfold through evidence gathered by Cloud, from hundreds of pages of military documents on the drone surveillance operation. Including transcripts of radio and cockpit conversations, Cloud outlines in the article, not only the vast network of communications behind a drone operation, but also the breakdown of responsibility in a chain of command, dependent on a system of the industrialization of vision. The events begin with a team of U.S special operatives, who have been dropped off on orders to search for insurgents and weapons near an Afghan town named Khod around 3 in the morning. In order to protect the team, the area surrounding the team is placed under surveillance by a Predator drone. Within a few hours after their arrival a convoy of two SUV’s and a pickup truck are seen. The convoy was carrying two dozen civilians, including shopkeepers, students, families with children off to visit relatives, and people seeking medical treatment. Yet, due to

¹³ Virilio, p. 59.

their proximity to the team of U.S operatives, which they were unaware of, they immediately became targets of suspicion and started to be tracked by a Predator drone.

The Predator drone is currently the primary UAV used by the CIA and the U.S military in offensive operations in Afghanistan, Pakistan and most recently, Yemen.¹⁴ It can stay aloft for 24 hours at a maximum altitude of 25,000 feet. It is capable of both surveillance and combat capabilities, equipped with two variable aperture cameras, as well as two hellfire missiles. The surveillance cameras on a Predator drone, display a “soda straw” view, that is a single lens whose perspective is described as looking down a soda straw, and have sensors that can see in low light as well as capture live video at night. The cameras also have synthetic aperture radar for seeing through haze, clouds, or smoke. The Predator tracking the events around Khod, that early morning, was remotely piloted via satellite-link to a Ground Control System (GCS) at Creech Airforce Base in Nevada. Along with the two-man team of the drone’s pilot and camera operator, other military personnel monitoring the live video feed from Nevada, included the mission intelligence coordinator, and a safety observer. They relayed information to each other and to the ground combat unit over radio.

Simultaneously, at a separate location, at Hurlburt Field in Florida, a team of “screeners”, also observed the live video feed from a room filled with hi definition screens. The screeners consisted of enlisted personnel, as well as private contractors. A civilian contractor was the mission’s “primary screener.”¹⁵ “America’s growing drone operations rely on hundreds of civilian contractors, including some-who work in the so-called kill chain before hellfire missiles are launched.”¹⁶ It takes about 168 personnel to keep a Predator drone aloft for 24 hours. (Gen. Philip M Breedlove, Air Force vice chief of staff is quoted, “Our No. 1 manning problem in the Air Force is manning our unmanned platforms.”¹⁷) The screeners instant messaged their observations to the

¹⁴ General Atomics MQ-1 Predator, *Wikipedia*, retrieved 17 April 2012, <http://en.wikipedia.org/wiki/General_Atomics_MQ-1_Predator>

¹⁵ Cloud, David, ‘Civilian contractors playing key roles in U.S drone operations,’ 29 December 2011, *Los Angeles Times*, retrieved 5 January 2012, <<http://articles.latimes.com/2011/dec/29/world/la-fg-drones-civilians-20111230>>

¹⁶ *ibid.*

¹⁷ *ibid.*

military personnel at the GCS, yet are unable to directly contact or overhear any conversation with the military operatives on the ground including the general commander, who is responsible for calling in an attack. The network of multiple personnel communicating from separate locations, compile what is called in military terms, the “kill chain” before hellfire missiles are launched.¹⁸ To use deadly force, the commander on the ground would need a “positive identification” that there was a weapon on the convoy. The “positive identification “ was dependent on utilizing the imagery from the Predator drone and it was up to the screeners and the drone operators to find it. Conversation clips between the Predator’s crew and the screeners reveal the relationship between their dependency on the limitations of the lens and their confidence to build a deadly context out of it.

“See if you can zoom in on that guy...is that a...rifle?”

“Can’t really tell.”

“I was hoping to make a rifle out.”

“That truck would make a beautiful target.”

An Army officer involved with the incident states, “We all had it in our head, ‘Hey why do you have 20 military age males at 5a.m collecting each other? There can only be one reason, and that’s because we’ve put U.S troops in the area.” The capture of the convoy by the drone surveillance camera, made it a target. The presence of the convoy and the immediacy by which its image was contextualized as a threat to the U.S unit created the narrative leading to launch an attack. As Virilio has described, this presence emitted through a screen in realtime, termed ‘telepresence,’ is embedded with a reproduced sense of time, not only of the present but also with a piece of the future, in militaristic terms, a potentiality of threat. Just before the convoy went under attack, it was seen moving away from the team of U.S operatives. But it was too late.

After 4.5 hours of scrutinizing the convoy, all the eyes watching the live footage could not positively make out a weapon or the existence of children. Yet, at 7:40am the captain on the ground had concluded that he had established “positive identification”

¹⁸ *ibid.*

based on identification from imagery. An airstrike was called in and missiles from two Kiowa helicopters struck the vehicles. The Predator drone was there to provide missile backup as well as capture the attack and the aftermath in realtime. The Predator crew and screeners watched the streaming video of surrendering women and children as well as the severed bodies of the vehicle's passengers. Once realizing that they were not insurgents and posed no threat, they responded by reassuring themselves, that there was, as was quoted, "No way to tell, man...No way to tell from here."

The example of the Afghan tragedy reveals the interjection and reliance on the lens to create meaning, what Walter Benjamin describes as the lens' inherent ability to "reveal new structural formations of the subjects" it captures.¹⁹ In this horrific example of a drone operation gone wrong, the context of the convoy was woefully miscalculated, through the structural formation created from the lens. The time to respond was accelerated to the perceived threat, to match the pace of the incoming information. This example exposes some underlying conflicts of the growing dependency on drone technology replacing a physical context of reality on the battlefield. As much as the technology of drone surveillance depends on vision, the limitations of its mechanics provide a form of blindness, to the context of the events and distance from which they are experienced. The very capability of visualizing realtime events of the battlefield creates a form of overconfidence in the image, while creating a contextual blindspot, mentally and visually for any events happening outside of the scopic regime. The digital technology of realtime streaming footage collapses notions of the separation of space, replacing it with a sense of responsive immediacy in the military control room, resulting in a decision making process directed by the pace of its capture.

1.3 THE TECHNOLOGICAL INCARNATION OF MYTH: THE GORGON STARE

¹⁹ Benjamin, Walter, *Illuminations*, 2nd edn, Schocken Books, New York, 2007, p. 236

The reliance on the limited scope of the duo camera sensors on the Predator has been realized, with discrepancies occurring with high-level command taking over decisions for ground unit forces based on its video feed. The limited scope of the “soda straw” capture, leaves those that watch and ultimately determine tactical decisions, to neglect the events outside the cameras’ capture, leading to a loss of local context. The eventual dependence on UAV’s over ground troops for ground intelligence is realized through the development of a multi camera surveillance system called the Gorgon Stare. The name is based on the Greek mythology of the fatal gaze of the immortal sisters of Medusa. The Gorgon Stare consists of a surveillance system with 9 cameras that lead to 65 feeds and requires 2,000 personnel to man it.²⁰ The U.S Air Force calls it a “wide-area surveillance sensor system” capable of capturing video of an entire city simultaneously. The method by which it can capture a wide area is through stitching together the images of the multiple cameras into a mosaic, for a single-wide area view made to create “increased situational awareness.”²¹ Aviation Week reports, “The ground station team, which will control the system’s sensors, can also transmit the relatively low-resolution wide-area view to recipients “in-theater” or elsewhere via other wideband communication devices, plus “chip-out an additional 50-60 views and forward them as needed.”²² Because the breadth of information captured by this system is massively multiplied from the single or duo camera operating system of previous drones, the need for visual analysis information can exceed human scale. Speed is also outpacing human ability in visual analysis, as the massive amounts of information comes in faster, decisions based on the information must be made quicker. As Chris Gray states, “Machines set the pace, humans experience it.”²³ Top air force officials state with the advent of the Gorgon Stare, “the future of ISR would be limited

²⁰ Predator Drones and Unmanned Aerial Vehicles (UAVs), *NYTimes*, 20 March 2012, retrieved 25 March 2012,

<http://topics.nytimes.com/top/reference/timestopics/subjects/u/unmanned_aerial_vehicles/index.html>

²¹ ‘Gorgon Stare Broadens UAV Surveillance’, *aviationweek.com*, retrieved 3 March 2012,

<http://www.aviationweek.com/Article.aspx?id=/article-xml/DT_11_01_2010_p30-261179.xml>

²² *ibid.*

²³ Gray, Chris, *Post Modern War: The New Politics of Conflict*, Guilford Press, US, 1997, cited in P W Singer, *Wired For War: The Robotics Revolution and Conflict in the 21st Century*, Penguin Press, New York, 2009, p. 332

only by the human ability to process the information gathered.”²⁴ This creates the need for the development of not only vision machines by machines that have the ability to envision. Artificial intelligence systems such as the Mind’s Eye Project, are developing machines capable of visual intelligence “...to add the perceptual and cognitive underpinnings for recognizing and reasoning about the verbs in those scenes, enabling a more complete narrative of action in the visual experience.”²⁵ The term ‘verb’ refers to the application of syntax to the tracking of movement in realtime video capture, creating a language for cognitive and visual intelligence. Visual intelligence through machines is based on a system of tagging and metadata as well as the ability to recognize patterns. The Gorgon Stare is presently in development and has been for the last 2 years. It will be developed in three phases, with a version being tested and utilized in 2011, 2012, and 2014.²⁶ At this phase of development for the Gorgon Stare, hi definition video quality has been abandoned for the ability to survey a wide area,²⁷ in order to provide what is understood to be the context of the ‘verb.’ Images of higher definition take longer to download. The latest version of the Gorgon Stare have been met with a host of problems ranging from large gaps of surveillance between the ‘seams’ of stitched together imagery, to unusable imagery captured at night and in bad weather.²⁸ The Gorgon Stare, which presently can only be implemented on a Reaper Drone, can stay aloft for 14-15 hours at 20,000-25,000 feet. Because of electrical power limitations it must fly ‘unarmed’, that is without hellfire missiles attached.

1.4 A CRISIS IN WAR

²⁴ Putrich, Gayle, ‘Gorgon Stare Tests Reveal Long List of Problems’ *Flightglobal*, retrieved 17 April 2012, <<http://www.flightglobal.com/news/articles/gorgon-stare-tests-reveal-long-list-of-problems-352261/>>

²⁵ ‘DARPA Kicks Off Mind’s Eye Program’ *DARPA*, 04 January 2011, retrieved 14 April 2012, <http://www.darpa.mil/NewsEvents/Releases/2011/2011/01/04_DARPA_Kicks_Off_Mind's_Eye_Program.aspx>

²⁶ Putrich, loc. cit.

²⁷ Axe, David & Shachtman, Noah, Our ‘All-Seeing Eye’ Sees Just Fine, Air Force Insists *Wired Magazine*, 25 January 2011, retrieved 18 April 2012,

<<http://www.wired.com/dangerroom/2011/01/all-seeing-eye-can-see-just-fine-air-force-insists/>>

²⁸ Putrich, loc. cit.

Professor Chris Gray states, “War is not just in transition, it is in crisis.”²⁹ Drone technology has lead historians, journalists and researchers to believe that war is in a state of crisis because it is the first technological shift to take bodies out of war. “If there is no risk, no cost, then it isn’t war as we think of it. If you are going to have a war, you’ve got to involve people and their bodies. There’s no other way.”³⁰ The political response has added to this crisis by its treatment of drone warfare. The participation, deliberation and consensus needed to make decisions in war have all been absent in drone operations. In an article titled “Do Drones undermine Democracy?”³¹ Peter Singer has argued how drone operations have circumvented the democratic process of war in the U.S. The U.S has entered conflicts through drone operations that have lead to regime change and the killing of multiple senior operatives of terrorist networks, as well as civilians, all in undeclared war zones. These drone strikes are not recognized as acts of war, because they “do not involve the presence of U.S. ground troops, U.S. casualties or a serious threat thereof.”³² Yet, bodies still do exist in war, for those that are on the receiving side of the targeted missiles and for those being surveilled. What materializes as war on the receiving end of the drone is not being treated like war by the political regime running the operations. The covert nature of drone operations has further supported the circumvention of democratic processes and access to operational information. The situation of operating a war without the need for democratic processes, exist through the new technologies of reproduction. For one side of the conflict, the body is replaced with the lens.

Walter Benjamin, in his seminal work on the transformative effects of reproduction in art, *The Work of Art in the Age of Mechanical Reproduction* has stated, “For the first time in the process of pictorial reproduction, photography, freed the hand of the most important artistic functions which henceforth devolved only upon the eye

²⁹ Gray, Chris, cited in P W Singer, p. 333

³⁰ Fussel, Paul in in P W Singer, p. 325

³¹ Singer, Peter, ‘Do Drones Undermine Democracy?’, *NYTimes*, 21 January 2012, Opinion, , retrieved 18 April 2012, <<http://www.nytimes.com/2012/01/22/opinion/sunday/do-drones-undermine-democracy.html?pagewanted=all>>

³² *ibid.*

looking into a lens.”³³ Drone warfare, and its technology of reproduction has become the site through which war is increasingly fought, ‘freeing’ the experience of the body and replacing it with the surgical perspective of the camera lens. How has this affected the process and experience of war thus far? This process has placed vision in a position of abstracted dominance. Drone technology is an example in our contemporary social landscape of how today’s technologies of representation have developed to replace previous forms and sites of politics. Reproductions, whether mechanical in the context of photography and film, or digital as in the case of drone warfare, increasingly exist as the filter through which war, and reality is understood.

1.5 YEMEN AND SIGNATURE STRIKES

The recent expansion of U.S drone operations by the CIA in Yemen exposes the growing reliance and transformations of drone warfare. So far, the information through news reports, on drone warfare in Yemen, have highlighted the reliance on the scopic regime of drone technologies to direct policies in war. Yemen has emerged as “the most pressing terrorism threat to the United States.”³⁴ Yemen serves as the base for al-Qaeda in the Arabian Peninsula and the group threatens to overthrow the Yemeni government. Members of the group are also militant operatives that pose a threat to the United States. An article in *The Washington Post*, states “The CIA is seeking authority to expand its covert drone campaign in Yemen by launching strikes against terrorism suspects even when it does not know the identities of those who could be killed. Securing permission... would allow the agency to hit targets based solely on intelligence indicating patterns of suspicious behavior, such as imagery showing militants gathering at known al-Qaeda compounds or unloading explosives.”³⁵ These strikes known as ‘signature strikes,’ contrast from ‘personality strikes,’ which target individuals whose identification must be secured first from a ‘kill list.’ The identity of those targeted for cellphone intercepts and informants on the ground. Speed is a key weapon and component

³³ Benjamin, p. 219

³⁴ Miller, Greg, ‘CIA seeks new authority to expand Yemen drone campaign,’ *The Washington Post*, 19 April 2012, World, retrieved 19 April 2012, <http://www.washingtonpost.com/world/national-security/cia-seeks-new-authority-to-expand-yemen-drone-campaign/2012/04/18/gIQAsumRT_story.html>

³⁵ *ibid.*

promoting the transition from ‘personality strikes’ to ‘signature strikes.’ The CIA has practiced the implementation of ‘signature strikes’ in Pakistan. Part of the strategy in Pakistan, was “centered on mounting a drone campaign so relentless that it allowed no time between attacks for al-Qaeda operatives to regroup. The use of ‘signature strikes’ came to be seen as critical to achieving that pace.”³⁶ The scopic trope utilized for ‘signature strikes,’ is dependent on the scale from which drone surveillance captures an area. ‘Signature strikes’ are based on targeting through tracking movement and visual patterns that expose telltale “signatures” of al-Qaeda activity. This is based on operatives’ vehicles, facilities, communications equipment and patterns of behavior. Experience in Pakistan has led to the CIA becoming adept in understanding what was happening inside a compound, based on the location and number of security operatives surrounding the site. The signature is then reliant on the ability to define shapes and patterns, most dependent on being seen from above. The need to positively identify an individual relies more on the cellphone intercepts or other ground intelligence. Proponents of the policy have argued that in Pakistan, the CIA “killed most of their ‘list people’ when they didn’t know they were there.”³⁷ Although, vision is positioned as a dominant weapon of drone warfare, paradoxically the argument for the proliferation of its use, in ‘signature strikes’ has been justified through what they cannot see.

CHAPTER 2: IN THE AGE OF MECHANICAL REPRODUCTION

2.1 WALTER BENJAMIN

Drone technology represents a structure of hierarchy, which places the eye, or rather the lens at its pinnacle. Vision and technology have become interlinked in a radical

³⁶ *ibid.*

³⁷ *ibid.*

and fatal form through this process. Because this form of war now includes the transformative qualities of visual reproduction, I am drawn to a seminal text about society, vision and technology in Walter Benjamin's "The Work of Art in the Age of Mechanical Reproduction" (1936). This text illuminates the process of reproduction as a site of meaning, informing and shaping society's interaction with reality. This insight has been overlooked by many contemporary commentators on drone technology. His approach is relevant not only towards the technologies themselves but also through the historical context from which the text was written. The era responding to the *fin de siècle*, from which Walter Benjamin writes, mirrors today and its own technological revolution. The effects of a newly mechanized landscape brought about concepts of apocalyptic transformations coloring Benjamin's social landscape. It is clear from the industrial revolution, that social history is connected to technological innovation.

From this contextual background, I have replaced the term 'Art' with 'War' for this study of drone warfare. This is in reference to a perspective of the role of art production as a site that produces meaning by mirroring, and foreseeing the habits and trends of the social landscape. In reference to the role of the artist according to Nietzsche, "The artist spins an endless web of illusory form, which eventually becomes the habit of others."³⁸ In regards to war, the relationship between the artist and society is reflected in warfare technology, as its position of being a catalyst for technological design and invention, a position that states depend on for their own survival. The technology of warfare has been the source for design of urban landscapes, architecture, the objects of quotidian life and most recently the invention of the virtual landscape, that of the internet. Exploring the role of drone warfare and its development, therefore connects to the study of modernity and society at large. The technology introduced by the military industrial complex has the same relation as described of the Nietzschean artist, as "...eventually becoming the habit of others." This pervasive point was well understood by Benjamin and the role of mechanical reproduction in art, in his response to the newness of visual technologies of his time.

2.2 MECHANIZED WAR

³⁸ Humphreys, Richard, *Futurism*, Tate Gallery Publishing, London, 1999, p. 17

The political and social landscape of Benjamin's era provides a backdrop for the content of his study. The horrific effects of the inventions of the Industrial Revolution were realized through the experience of the First World War (1914-1918). It was the first mechanized war, where the vast power of machines was harnessed against men. The Germans used the latest technology manifest in the machine gun, against an allied army still fighting by traditional methods, ill equipped to defend themselves. The disparate use of technology against an army without corresponding advances in mobilization relegated the battlefield into an industrial killing field. The mechanization of war, as Omer Bartov has stated "reduc(ed) humanity to the role of only one component among many others in the machinery of war".³⁹ It was the first war where victory relied on the quantity and quality of machines and not men.

Technology also transformed and redefined the division of labor and status within the armed forces. Bartov states when describing the period after the First World War, "the widespread penetration of technology into the armed forces also made for the emergence of soldier/technicians, men of specialized knowledge filled with professional pride and a sense of indispensability as experts and individuals alike...the growing army of non-combatant soldiers, mechanics and electricians, radar operators and photography experts, intelligence officers and code-breakers without whom no bomber could take off or find its target, no tank could drive or fire."⁴⁰ The technocrat has reached a totalizing position in drone warfare, where the distinction between a combatant and non-combatant soldier collapse. Pilots trained for traditional aircraft are retrained to remotely pilot drone aircraft. In the dynamic of drone warfare, the combatant melds with the technocrat and vice versa. Bartov goes on to describe the particular identities associated with the soldier/technician class. "Whereas combat elites might become politically identified and ideologically motivated, non-combatant professionals often assumed a politically indifferent, technocratic attitude, or preferred to focus on their task and ignore its political and/or moral implications."⁴¹ The industrialization of vision in the system of drone

³⁹ Bartov, Omer, *Murder in Our Midst: The Holocaust, Industrial Killing, and Representation*, Oxford University Press, New York, 1996, p. 34

⁴⁰ Bartov, p. 27-8

⁴¹ Bartov, p. 28

technology reflects the attributes of the technocratic attitude. The ‘cubicle warrior’⁴² of the drone operator, is part of a kill chain, which relies on the gaze of multiple others, video analysts, both military and private contractors. Each are focused on their own task, removed from the realities and responsibility of the battlefield. This allows each component to remain distanced from the political or moral implications of their actions. Yet, each component make up the greater decision making vehicle of the kill chain, resulting in the possibility of a launch of missiles. The development of a technocratic mentality as part of warfare reflects a societal reality. The process of industrialization in the First World War transformed the autonomy of the individual into a faceless mass, as existing only as a small component of a larger social machine.

By the Second World War, men had mastered the machine for their own use, in aerial combat through bomber planes, where individual pilots could ride one machine against another. Bartov argues that this resurgence of a heroic individual identity in war, through the machine paradoxically made it possible to render others into anonymous masses. “By achieving that apparent liberation from mechanization, men rapidly learned how to turn other multitudes, to which they themselves did not belong, into anonymous masses that could this time be physically destroyed without presenting any threat to the perpetrators’ sense of individual humanity.”⁴³ The mechanization of war, once mastered, had presented a filter, which protected the psychic self from the acts of killing so thoroughly carried out through machinery. Drone warfare in the digitization of warfare, removes the threat from the actual physical self in war. The scopic regime has further created a condition of anonymity through the filter of the machine, by focusing on the visual patterns rather than identity of those targeted. Describing the ultimate mechanized accrual of warfare, nuclear warfare, Bartov writes, “Since Hiroshima and Nagasaki, nuclear weapons have for the first time in military history introduced the possibility of war without soldiers, without battlefield experience, and most certainly devoid of all memory, being instead the technician’s ideal, total destruction at the tip of one’s finger. The politically indifferent technocrat will by definition strive to perfect this kind of warless war and make unleashing it all the easier for anyone willing to try, no matter

⁴² Singer, p. 336

⁴³ Bartov, p. 29

what their ideological stance may be.”⁴⁴ By this description, it is clear that drone warfare inherited the technocratic ideals of the nuclear weapon. Bartov’s description is written before the introduction and proliferation of drone technology leading the combat tactics of warfare. Yet, the circumstances of proliferation remain the same. The justification of fighting a technologically inequitable war through drone warfare rests on an ideal of technological triumph mixed with the defense of the ideology of western democracy from the threat of terrorism. Yet, the circumvention of democratic processes of declaring war threatens the very ideology, drones stand to protect.

2.3 THE SKY

The connection between vision and war underwent a transformation after the experience of trench warfare in the First World War. The experience on and under the ground of the industrial killing field, was a “bewildering landscape of indistinguishable, shadowy shapes, illuminated by lightning flashes of blinding intensity, and then obscured by phantasmagoric, often gas-induced haze.”⁴⁵ Martin Jay states, this experience was “more visually disorienting than those produced by such nineteenth-century technical innovations as the railroad, the camera, or the cinema.”⁴⁶ With masses of soldiers, indeterminable from one another dressed in camouflage and hidden underground, all that could be seen, if at all, was the monotony of the mud or the sky above. The traditional reliance on visual evidence for one’s survival was destroyed through this experience. The ground trenches created an unintelligible existence, where one could not make out any coherent landscape. As the historian, Eric J. Leed writes, “The invisibility of the enemy, and the retirement of troops underground, destroyed any notion that war was a spectacle of contending humanity.”⁴⁷ Leed argues, that this visual deterioration on the ground, lead to more serious effects, that threatened the very notions of western civilization. “The invisibility...seemed to make the war experience peculiarly subjective and

⁴⁴ Bartov, p. 28

⁴⁵ Jay, Martin, *Downcast Eyes: The Denigration of Vision in Twentieth Century French Thought*, University of California Press, London, 1994, p. 212

⁴⁶ Jay, p. 212

⁴⁷ Leed, Eric J, *No Man’s Land: Combat and Identity in World War I*, Cambridge University Press, New York, 1981, cited in M Jay, *Downcast Eyes: The Denigration of Vision in Twentieth Century French Thought*, University of California Press, London, 1994, p. 213

intangible...This constriction of vision eliminated most of those signs that allow individuals to collectively order their experience in terms of problems to be solved in some rational sequence...Naturally, this chaotic world was judged entirely on the basis of the individual's own perspective, a perspective that mobilized deeply layered anxieties, animistic images, and surprising and unbidden associations."⁴⁸ The loss of a collective vision in war, Leed argues, connects to a collapse in the transcendental notion of order, of a master narrative. This collapse threatens the concept of western civilization, one fundamentally dependent on the domination of a dispassionate gaze.⁴⁹ Regaining this order, then, through a dominant, collective vision was part and partial, starting at the beginning of the 20th century, not only with victory in warfare but for the power of nation-states.

The experience of the ground war directly contrasted from a pervasive mythic image of war, where the triumph of modern industrialism was bound together with heroic virtue.⁵⁰ This image, both its projection as well as its experience, was inherited by the aviator. He became the incarnation of a heroic warrior in the new century, as a combatant who could rise above, mastering the mechanics of aircraft, and most importantly, making visually intelligible, the chaos below.

As reported recently by the BBC, on the changing perception of the role of flying aces in the First World War, "The real heroes of the war in the air were the pilots and observers... to keep the ground troops aware of everything that the enemy was doing. The romance of gladiatorial combat in the air makes their adventures...some of the most stirring tales of the Great War. But, the main role of the Royal Flying Corps, with its hundreds of pilots and thousands of ground crew, was very different. It was the eyes of the army."⁵¹ The sky, through its perspectival vantage point, became charged with significance, equated with the reclaiming of vision and therefore, order. It is from this distance that the 'theatre of war' could operate, and combatants could exert a force of

⁴⁸ *ibid.* p. 215

⁴⁹ Jay, p. 215

⁵⁰ Bartov, p. 30

⁵¹ Shipton, Alyn, "The Original Air Aces," *BBC*, 7 May 2012, retrieved 13 May 2012
<<http://www.bbc.co.uk/news/magazine-17954439>>

dominance. Aerial surveillance, could replace the power of combatants engaged in battle simply by making order of the battlefield, through accurately observing the position and tactics of the enemy.

Drone technology has directly extended this ability by engaging in combat through the position of the dispassionate gaze and circumventing the ground battle. As Leed writes, “The sky...could become the locus for a projected, split vision in which the victim could somewhere become the distanced observer...It *must* be the residence of the observer watching himself struggle through the nightmare of the war, for only then will the eye survive the dismemberment of the body.”⁵² The technological dismemberment of the eye found in drone warfare, has transformed the ‘dispassionate gaze’ into a weapon in and of itself. The rise of drone warfare, finds its technological lineage connected to the initial experiences and challenges of mechanized warfare. Unmanned aerial aircraft have become a culmination of combat dominance through visual primacy. The proliferation of signature strikes over personality strikes is an example of the dominance of visual intelligence to maintain a structure of power and civilization, grounded upon the ability of the distanced observer.

2.3 THE FUTURISTS

Jay states, “From the air, the labyrinth of trenches could seem like a patterned carpet”⁵³ associating vision in war with the resurgence of the aesthetic movement of Cubism and referring to the aesthetic principles of Futurism. Jay refers to Gertrude Stein, terming the First World War as ‘The Cubist War.’⁵⁴ John Welchman states that the analogy of the work of Cubism and the Futurists and aerial photography was referenced in actual pilot training manuals.⁵⁵ The relationship of vision in war with broader aesthetic movements expresses a dialectic role between visual technologies and the transformation

⁵² Leed, cited in M Jay, p. 137

⁵³ Jay, p. 214

⁵⁴ Jay, p. 214

⁵⁵ Welchman, John, ‘Here, There and Otherwise,” *Artforum International*, September 1988, p. 18, cited in M Jay, p. 214

of social and political realities. This point has been recognized throughout Benjamin's text, and acts as one of the major motivations behind it. It is specifically referenced in the epilogue of "The Work of Art in the Age of Mechanical Reproduction." Benjamin quotes the author of The Futurist Manifesto, F. T. Marinetti, "War is beautiful because it initiates the dreamt-of metallization of the human body... War is beautiful because it creates new architecture, like that of the big tanks, the geometrical formation flights, the smoke spirals of burning buildings, and many others..."⁵⁶ Benjamin goes on to state how the Marinetti and the Futurist movement "expect war to supply the artistic gratification of a sense perception that has been changed by technology."⁵⁷ The rise of Fascism experienced by Benjamin in his social environment was seen as a culmination of the introduction of aesthetics into politics, whose inevitable fallout to Benjamin, was war.⁵⁸ The return to order of a master narrative lost through the experience of the First World War, was found in the ideology of Fascism. Principles of Futurism, outlined in Marinetti's manifesto, became part of the Fascist ethos, which set goals of war acting as the world's hygiene.⁵⁹ This made it possible to mobilize all technical achievements and resources while not having to change any fundamental power structures within society, what Benjamin refers to as the 'property system.'⁶⁰ For Benjamin this was an undeveloped utilization of technology.

The Futurists depicted the power of machines for pure aesthetic gratification. They gave a visual language to mechanized violence. In its glorification of the industrialized landscape, the Futurists recognized the power of technology to destroy all previous notions of time and space. As Marinetti states in the manifesto, "Time and space died yesterday."⁶¹ The obsession with speed, as a transformative force was visualized through Futurist paintings rendering the human body transparent. They depicted the speed of light and movement with the power to destroy the materiality of the body.

⁵⁶ Benjamin, p. 241-2

⁵⁷ Benjamin, p. 242

⁵⁸ Benjamin, p. 242

⁵⁹ Marinetti, F.T, 'The Futurist Manifesto,' 1909, retrieved 2 January 2012, <<http://cscs.umich.edu/~crshalizi/T4PM/futurist-manifesto.html>>

⁶⁰ Benjamin, p. 241

⁶¹ Marinetti, F.T, loc. cit.

Humans blended into an industrialized landscape.

A potent example of a visual rendering of the body made transparent is the sculpture, *Profilo Continuo* (Continuous Profile) 1933, by the Futurist artist, Renato Bertelli (see figure. 1) depicting the head of Benito Mussolini. Mussolini set up the Italian Fascist Party after the First World War and became the Prime Minister of Italy in 1922, and its dictator from 1925-1945. As a nation building piece, this sculpture was approved as an official portrait, by Mussolini himself.⁶² This sculpture referenced a style termed *aeroceramics*, through which Futurists expressed a concept that each technical idea was more than just an image but rather a vision of the universe. Virilio states that this style was a “new fusion-confusion of perception and object which already foreshadows video and computer operations of analogous simulation.”⁶³ The original sculpture is made from a block of black glazed clay, sculpted into a bust of Mussolini, with a 360 degree view of his profile.⁶⁴ The distinctive features of his face are in a blur, with only the outline of his profile remaining sharply defined. It was intended to express the omnipresence gaze of Mussolini in all directions. The head escapes the clarity of detail that is found in the still object, instead evoking pure and absolute speed. The descriptions of this visualized presence are analogous to descriptions of images produced through drone surveillance, finding context and identification blurred in exchange for the sharp definitions of profiles. *Profilo Continuo* while representing a culture of modernity and evoking a new era, its form and material refer to antiquity, with the depiction of the two headed, Roman God of Janus. (see Figure 2) The two heads of Janus, express a quality of duplicity, (also representing ‘beginnings and endings’ and ‘transitions between peace and war’⁶⁵), which may be more consciously referenced in the more recent appropriation of *Profilo Continuo* by artist Julian LaVerdiere. In 2004, LaVerdiere applied the same conception of Mussolini, in the sculpture titled, *Continuous Profile (of George W. Bush)*, (see Figure 3) but re-imagined in the form of George W. Bush, the

⁶² ‘Renato Bertelli,’ *Wikipedia*, retrieved 3 May 2012, <http://en.wikipedia.org/wiki/Renato_Bertelli>

⁶³ Virilio, p. 29

⁶⁴ *It was later mass-produced in bronzed terracotta, wood, and aluminum. ‘The Pope, the Head, and the Duce’ *mundabor*, retrieved 3 May 2012, <<http://mundabor.wordpress.com/tag/profilo-continuo/>>

⁶⁵ Lindemans, Micha F., ‘Janus,’ *Encyclopedia Mythica*, retrieved 4 May 2012, <<http://www.pantheon.org/articles/j/janus.html>>

originator of the 'War on Terror.' In the case of LaVerdiere's sculpture, the blur of Bush in continual motion, reflects the whirlwind events surrounding him and his administration and their inability to grasp the consequences.



Figure 1. *Profilo Continuo*. Renato Bertelli. 1933

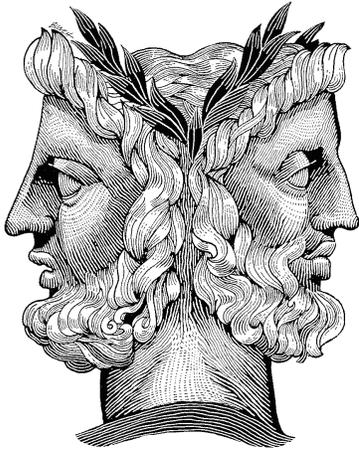


Figure 2. Roman God of Janus



Figure 3. *Continuous Profile (of George W. Bush)*
Julian LaVerdiere. 2004

The influence of Futurist aesthetics referenced in present responses to the political landscape can be seen in another work of the same artist, LaVerdiere's *Tribute in Light Memorial*, (2002). (see Figure 4) As a memorial to the victims of 9/11, LaVerdiere created an architecture of light, with the use of 88 searchlights, creating two vertical columns of light, reaching a mile into the sky, in place of the World Trade Center's twin towers. The use of light as a sculptural force inherits the essential syntax of light, as a value that creates all images. The spectacle of light also expresses the ability of light to turn matter immaterial, highlighted by LaVerdiere's work to create an echo of what once stood in its place, a ghost image of the twin towers. The architecture of light directly references the original 'cathedral of light' created by Nazi architect, Albert Speer erected for the Nuremburg rallies in 1935. (see Figure 5) Another nation building use of Futurist aesthetics, Speer used "150 anti-aircraft searchlights with their beams pointing upwards, making rectangle of light in the night sky."⁶⁶ Speer has said of his creation, "I now feel

⁶⁶ Virilio, p. 11



Figure 4. *Tribute in Light Memorial*. Julian LaVerdiere. 2002



Figure 5. *Cathedral of Light*. Albert Speer. 1935

strangely moved by the idea that the most successful architectural creation of my life was a chimera, an immaterial image.”⁶⁷

The foreshadowing of the structure of perception, wedded with ideology finds a resurgence of Futurist aesthetics with aesthetic responses to today’s political environment. This reference to the past as a form of perception in our present, reflect a dialectic development of the perceptual field and the morphology of the technical filter through which reality is perceived. The principle of ‘interpenetration’⁶⁸ regarded by Futurist artists, aesthetically blended the human body with surrounding objects. Translated into a mode of perception, ‘interpenetration’ becomes realized through the syntax of the streaming footage of seen through the monitor screen. By observing and fighting war from through the filter of the screen, the bodies, both targeted and visually analyzed, is dematerialized, transforming the battlefield into an aesthetic experience. Drone technology, with its ability to remove a combatant from physical realities, renders the bodies it targets and surveils as immaterial in the scopic regime of the monitor screen. It is the actual realization of the ‘metallization of the body’ blending bodies with the syntax of the machine.

The era of the initial Futurist movement, at the beginning of the 20th c, responded to the revolution of electrical light. Through its ability to cast brilliant light, opening the eye towards previously private spheres and illuminating micro details, electrical light was seen by the Futurists, as a force that “killed the moonlight.”⁶⁹ The magnification of illumination in our present era through ubiquitous surveillance technology, casts the eye upon ever far reaching unseen corners of the earth, depicting its details. This technological development of realtime, ‘kills’ previous notions of spatial order, changing the function of the image as not one that represents space, but rather of time.

⁶⁷ Speer, Albert, *Inside the Third Reich*, Weidenfeld, London, 1970, cited in Virilio, Paul, *The Vision Machine*, Indiana University Press, Great Britain, 1994, p. 11

⁶⁸ Perloff, Marjorie, *The Futurist Moment*, The University of Chicago Press, Chicago & London, 1986, p. 53

⁶⁹ Marinetti, loc. cit.

The Futurists and their aesthetic motivations, so grounded in expressing the influence of machines on modern times, influenced and gave ground to the rise of social and political beliefs. Their methods mirror aesthetic practices of today, where artists are recognizing the way digital technology is supplanting previous concepts of time and space. Marjorie Perloff argues that Futurists artists of today engage with the process of mechanization itself, “it is with the ‘language,’ the morphology, of machines-how they function syntactically, systemically, one part to another as a structural model for...art.”⁷⁰ As described of another light sculpture, the artist, Dan Flavin’s ‘instant monuments,’ “The “instant” makes Flavin’s work a part of time rather than space. Time becomes a place minus motion. If time is a place, then innumerable places are possible. Time breaks down into many times. Rather than saying, “What time is it?”, we should say, “Where is the time?”⁷¹ This description of Flavin’s sculptures, accurately describes the experience of time over space, in drone technology. The collapse of space through the screen of the battlefield, connects to a sense of time as an instigator of action. It is time that is conveyed through the image, rather than space. Time becomes the motivator for action and engages the connection between the observer and the observed. As Singer states quoting James Taylor, “It’s war o’clock somewhere.”⁷²

CHAPTER 3: WAR AND DIGITAL REPRODUCTION

⁷⁰ Perloff, p. 227-8

⁷¹ Perloff, p. 236

⁷² Singer, p. 347

3.1 SIGNATURE STRIKES

Drone warfare departs from the era of mechanical reproduction through its digital make up, recognized most potently in the quality of realtime streaming footage. Benjamin's critique of mechanical reproduction is the loss of what he terms the 'aura.' 'Aura', is regarded by Benjamin as the 'substantive duration' of the work of art, or its authentic existence in a specific space and time.⁷³ For Benjamin, the loss of 'aura' marks the transition of the work of art existing as a cult object to an exhibition object. The visual reproduction of war mirrors this transition of war becoming an event made to be exhibited. Benjamin's focus on the loss of 'aura' is expressed through his description of the change in mode of perception by the masses. That society is bent towards desiring all things "closer" spatially, through the reproduction, the loss of the aura is accepted by society, promoting a "sense of the universal equality of all things." This equality overrides any unique experience. This change of perception through reproduction changes the function of the image. Benjamin argues, "Thus is manifested in the field of perception what in the theoretical sphere is noticeable in the increasing importance of statistics."⁷⁴ In war, digital reproduction is changing the function of war, recognized by the argument of war being in a state of crisis. The 'increasing importance of statistics' in the perceptive field is most expressed in the process of 'signature strikes' and its connection to a mode of perception conducive to the development of artificial visual intelligence.

Yemen has become a base of operation for members of alQaeda in the Arabian Peninsula, and is tied to the local insurgency attempting to overthrow the Yemeni government. Drone attacks by the CIA in Yemen, are focused on targeting senior alQaeda operatives that have "a direct interest in attacking the United States," states a senior administration official.⁷⁵ The situation in Yemen requires a surgical sense of precision to avoid killing local insurgents rather than those directly threatening the U.S if it doesn't want to be drawn into a civil war. But, the use of drone strikes has already

⁷³ Benjamin, p. 221

⁷⁴ Benjamin, p. 223

⁷⁵ Miller, loc. cit

proven to be anything but. In the previous year a drone strike mistakenly targeted and killed the teenage son of alQaeda leader, Anwar al-Awlaki. He had never been accused of terrorist activity and was killed in a strike that was targeting other militants.⁷⁶ The main way ‘signature strikes’ are conducted is being able to decipher patterns of suspicious behavior.

An essential expression of signature strikes is that the identity of the targets, is no longer relevant for the call to launch missiles. Although, it is stated that multiple sources of intelligence range from “signal intercepts, human sources as well as aerial surveillance”⁷⁷ are necessary to interpret the signs of suspicious behavior, it is clear that visual patterns are at the crux of the ‘signature strike.’ The approach of ‘signature strikes’ involves deciphering “telltale “signatures” of alQaeda activity based on location and the number of security operatives surrounding the site.”⁷⁸ This information is reliant on the visual intelligence source, through the tracking and surveillance of the area. It is also noted that securing the identity of targets is not possible solely through the surveillance cameras of the drone, and is usually dependent on signal intercepts and other ground sources of intelligence. That the focus on generalized patterns of behavior, aka statistical behavior, is overriding identity marks a clear shift of drone surveillance technology in guiding the tactics of warfare. It also is an expression of what Benjamin describes as a move towards a mode of perception that responds to reproduction in a way that substitutes the unique existence, in this case the identity of the person being killed, for a plurality of copies.⁷⁹ The number of drone strikes in Yemen by April of 2012 has surpassed the number of all strikes in the previous year. The surge in strikes have been argued as not been due to a conscious decision, but rather “intelligence driven” as stated by a senior U.S official overseeing the Yemen campaign.⁸⁰ That the intelligence becomes increasingly dependent on the hegemonic placement of the eye in drone surveillance

⁷⁶ *ibid.*

⁷⁷ Miller, Greg, ‘White House Approves Broader Yemen Drone Campaign,’ *The Washington Post*, 26 April 2012, retrieved 26 April 2012, <http://www.washingtonpost.com/world/national-security/white-house-approves-broader-yemen-drone-campaign/2012/04/25/gIQA82U6hT_story.html?wprss=rss_social-world-headlines&utm_medium=twitter&utm_source=twitterfeed>

⁷⁸ Miller, ‘CIA Seeks New Authority to Expand Yemen Drone Campaign,’ *loc. cit.*

⁷⁹ Benjamin, p. 221

⁸⁰ Miller, ‘CIA Seeks New Authority to Expand Yemen Drone Campaign,’ *loc. cit.*

supports the argument that drones are conducive to making war ubiquitous, creating war as far as the eye can see.

3.2 THE LENS

Benjamin's study is especially elucidating in approaching drone technology where his insights place the production of the image as a site of meaning. Benjamin makes an analogy between the roles of the cameraman with the role of a surgeon. The surgeon, Benjamin argues, "at the decisive moment abstains from facing the patient man to man; rather it is through the operation that he penetrates into him."⁸¹ Through mechanical equipment, the cameraman can penetrate so deeply into a reality, one that is presented as "equipment-free."⁸² The surgeon analogy is one that has been repeated by the officials negotiating drone proliferation in Yemen.⁸³ The term 'surgical attacks', has been used to describe the tactical dominance of drone attacks and has become an ideal in the war against terror, with the ability to locate the enemy, and penetrate into their treacherous terrain without having to face physical risk. The film camera, Benjamin describes "penetrates so deeply into reality that its pure aspect freed from the foreign substance of equipment...the equipment free aspect of reality here has become the height of artifice, the sight of immediate reality has become an orchid in the land of technology."⁸⁴ By extension, the streaming realtime footage of drone technology has replaced the space of 'immediate reality' with the ability to respond to its reproduction immediately. It is describes why Army Col. Steven A. Beckman, former intelligence chief for coalition forces in Sothern Afghanistan has called drone technology the "the crack cocaine of our ground forces." The immediacy of attack without the physical struggle of the reality of the battlefield mimic an all together another form of escape, beyond that of the "theatre of war." The drone footage produced through the filter of the lens and monitor, with their enhancements, bypass direct visual experience of the battlefield. The effect has scrambled the system of hierarchy within the armed forces,

⁸¹ Benjamin, p. 233

⁸² Benjamin, p. 233

⁸³ Miller, 'CIA Seeks New Authority to Expand Yemen Drone Campaign,' loc. cit.

⁸⁴ Benjamin, p. 233

where commanders viewing the same footage from a control room, as the camera operator, have taken over tactical decision making processes over ground forces.

The enhancements of the lens of the film camera, as Benjamin points out also have the power to “reveal entirely new structural formations of the subject...slow motion not only presents familiar qualities of movement but reveals in them entirely unknown ones.”⁸⁵ Applied to formulating tactical decisions in war, the image that is produced through this scopic regime uncomfortably includes ample room for subjective interpretation, especially in the system of visual industrialization, where there are multiple video analysts viewing simultaneously the same footage, yet no one is singularly responsible for a mistaken call to launch the missile, as in the case of the Afghan tragedy. In the investigation of the incidents of the Afghan tragedy, the video analysts relied on the camera’s capabilities to see or rather find, “positive identification” of an “imminent threat” through zooming in and freezing images.⁸⁶ In the end the limitations of detail through the lens, “images were fuzzy, small objects were difficult to identify”⁸⁷ lead to the gap between locating objective evidence with the perceived threat already assumed simply by capturing the convoy on screen.

In the case of the Afghan tragedy, context was created through the proximity of the convoy to the U.S unit. Visualized through the distance of aerial surveillance, the proximity of the convoy was dependent on the scale created by the lens. Benjamin states, “the camera intervenes, with its resources, with its lowerings, liftings, interruptions isolation, introducing us to unconscious optics, as does psychoanalysis to unconscious

⁸⁵ Benjamin, p. 236

⁸⁶ Cloud, loc. cit.

⁸⁷ Cloud, loc. cit.



Figure 6. Drone Footage from a Predator Drone.

pyschoanalytics of Benjamin’s era, is replaced in warfare by the act of attempting to reveal covert motivations of those tracked on screen. They are the visual documentation uncovering patterns of terrorist operations, previously undetected and camouflaged by terrain or the quotidian patterns of life in a Middle Eastern village. Benjamin states, the lens has the ability to expand space through the close up, and extend time through slow motion.⁸⁸ This ability to bring into focus an unconscious penetrated space, or areas that would be unnoticeable at first glance, substitutes the space that is consciously explored. In the case of the Afghan tragedy, other factors came into play for the camera operator and video analysts, in the gap of visual evidence and the decision to launch an attack. Specifically these factors relate to the arena of war, where there is always an imminent threat to lives on the ground and the factor that a year previous to the event another U.S operations unit had been attacked in the same district. The image produced through realtime footage of the drone, refers to what Virilio terms as the “’phatic image’ - a targeted image that forces you to look and holds your attention...not only a pure product

⁸⁸ Benjamin, p. 236

of photographic and cinematic focusing. More importantly it is the result of an ever brighter illumination, of the intensity of its definition, singling out only specific areas, the context mostly disappearing into a blur.”⁸⁹ The function of this image, so visually connected to Renato Bertelli’s *Profilo Continuo*. The definition of “phatic” refers to forms of language which function as a social task, rather than conveying information on its own.⁹⁰ In the case of the Afghan Tragedy, the streaming footage of the convoy functioned for a purpose, to protect the covert U.S operation and to find the threat. The industrialization of vision in the network of gazes analyzing the footage has become part and partial to the ‘kill chain’ within military command. The phatic image in the context of a military function brings fatal consequences not only to actual bodies that are targeted, but also to the experience of perceiving reality. The mistakes of the Afghan tragedy have not been resolved. The technological advancements developing in drone technology are moving toward perfecting the capabilities of wide area vision rather than hi definition quality. This coincides with the function of the phatic image, serving notions of western civilization dependent on a dispassionate gaze, overriding in this context, the subjectivity and authenticity of direct physical experience. The wide area is seen as providing a visual map, whose patterns of movement provide context and can be tracked and deciphered in a perceptive mode whose distance promotes a collective dispassionate gaze. By systematizing visual patterns of behavior, the technological development programs of the military industrial complex are building an artificial cognitive visual intelligence where the response to the image, comes around full circle by an objectified gaze that is not human, but rather, artificial.

3.3 THE MIND’S EYE

The Mind’s Eye is part of a 5-year development program, run by the Pentagon’s research department, the Defense Advanced Research Projects Agency (DARPA). It is a video analysis research project developing artificial intelligence. Support for the Mind’s Eye is a direct response in matching the increased pace of information created through drone surveillance with the ability to analyze the information. The massive information

⁸⁹ Virilio, p. 14

⁹⁰ ‘phatic,’ Dictionary.com, retrieved 7 May 2012, <<http://dictionary.reference.com/browse/phatic>>

in realtime is beyond the capacity of human analysis. It also mobilizes the reliance onto machines to resolve human limitations in the business of gazing. As Steve Lohr states in the article, “Computers That See You and Keep Watch Over You,” “machines do not blink or forget.” The goal of the program is to develop machines that can recognize, analyze and communicate what the machines can see. Terms such as the ‘persistent stare’⁹¹ refer to a mechanized visual capability, extending the duration of vision beyond human capacity, and beyond the human need to blink. Used in a social context, the term sounds humorous, in a mechanized war context, horrific. Yet, the capability of machines to persistently watch over areas is only met with the need for more mechanization. As is stated on DARPA’s site, “Such a capability, however, would not constitute a force multiplier because human analysts would have to interpret streaming video from these platforms to detect operationally significant activities. A truly transformative capability requires visual intelligence, enabling these platforms to detect operationally significant activity and report on that activity so warfighters can focus on important events in a timely manner.”⁹²

The process that the Mind’s Eye mechanizes is the human visual experience of spatiotemporal concepts. As stated by DARPA, “Humans visualize scenes and objects, as well as the actions involving those objects and possess a powerful ability to manipulate those imagined scenes mentally to solve problems. A machine-based implementation of such abilities is broadly applicable to a wide range of applications, including ground surveillance.” In order for machines to see, they must be able to recognize the object. The mechanized gaze must also be able to follow and track the object it recognizes. The system of tagging, now utilized on social networking sites such as Facebook and Picasa, is structurally similar to the way the artificial visual intelligence operates. Yet, the focus of the Mind’s Eye program is also to create an artificial visual intelligence that can

⁹¹DARPA, loc. cit.

⁹²ibid.

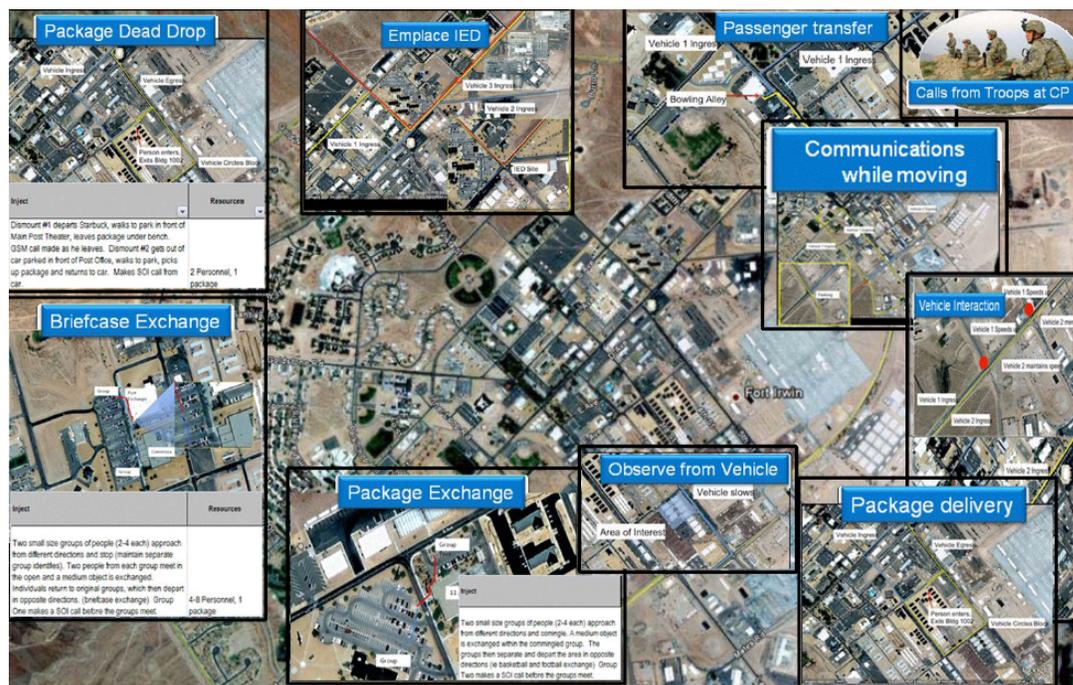


Figure 7. DARPA visual tracking technology

formulate larger conclusions based on the recognition of a visual pattern. “A key distinction between this research and the state of the art in machine vision is that the latter has made continual progress in recognizing a wide range of objects and their properties - what might be thought of as the nouns in the description of a scene. The focus of Mind's Eye is to add the perceptual and cognitive underpinnings for recognizing and reasoning about the verbs in those scenes, enabling a more complete narrative of action in the visual experience.”⁹³ The basis of tactics such as signature strikes relies on the visual patterns of behavior that can soon be read not by the gaze of humans, but by machines. In this dialectical approach between technologies of vision and death, the image created by the machine will also be consumed by the machine, taking out not only the human body but also the whole human component all together.

3.4 TELEPRESENCE

⁹³ ‘Mind’s Eye (US Military),’ *Wikipedia*, retrieved 7 May 2012
 <[http://en.wikipedia.org/wiki/Mind's_Eye_\(US_Military\)](http://en.wikipedia.org/wiki/Mind's_Eye_(US_Military))>

One of the major factors motivating the development of the Mind's Eye is its ability to support "warfighters to respond in a timely manner." The pace of response is dependent on the incoming information. Time replacing the distance of space is a consistent component explored in the scopic regime of drone technologies. The events of the battlefield are brought spatially close to home, to be streamed on monitors in air force bases across the U.S. Space is requiring a timely reaction in deterring any present and future threats. Virilio uses the term *telepresence* and *telereality*, where events happening at a distance, are brought close, and the presence of these events supercede the space of the actual event.⁹⁴ In this aspect the 'aura' itself is reproduced in the process, creating an alternative sense of time. Virilio argues that in the process of realtime reproduction, "The three tenses of decisive action, past, present, and future have been surreptitiously replaced by two tenses, *real time* and *delayed time*, the future having disappeared meanwhile, in computer programming, and on the other hand, in the corruption of this so-called 'real' time which simultaneously contains both a bit of the *present* and a bit of the *immediate future*."⁹⁵ The 'immediate future' holds the anticipation of the threat. In the case of the Afghan tragedy, the image held pieces of the immediate future in the possibility of a potential threat. Drone surveillance imagery is imbedded with this 'immediate future.' The anticipation of panic as Virilio states "commits the future."⁹⁶ The archived footage of drone surveillance also represents another form of time in telepresence, by "preserving like an echo, the real presence of the event."⁹⁷ This is realized through the vast surveillance information producer of the Gorgon Stare, whose multiple cameras can surveil an area the size of a city, and whose footage is stored, so that events can be reconstructed after the fact.

3.5 GORGON STARE: AS FAR AS THE EYE CAN SEE

⁹⁴ Virilio, p. 64

⁹⁵ Virilio, p. 66

⁹⁶ Virilio, p. 66

⁹⁷ Virilio, p. 67

The Gorgon Stare is an example of a form of technological reality made from myth. In Virilio's *The Vision Machine*, the Gorgon myth is analogous to a kind of "integrated circuit of vision."⁹⁸ Quoting Jean-Pierre Vernant, "To behold the Gorgon, you must look into her eyes and when your eyes meet, you cease being yourself, cease living and become, like her, a power of death." This "integrated circuit" manifests when one meets their death through returning the gaze of the Gorgon. The moment that visual contact occurs, it manifests in death in the form of turning flesh into stone. The Gorgon Stare refers to this power of circular logic that elevates the capabilities of the eye (of command), and equates with the death of those who meets its gaze. The program has become the answer to the limitations of present visual technology in drones. By stitching together the video feeds of 9 cameras, an entire village can be under surveillance simultaneously. The image produced by the process of the film camera, is one Benjamin describes as the assembly of multiple fragments. For the Gorgon Stare, this mosaic of images, provides a wide area view in order to track movements throughout a city.

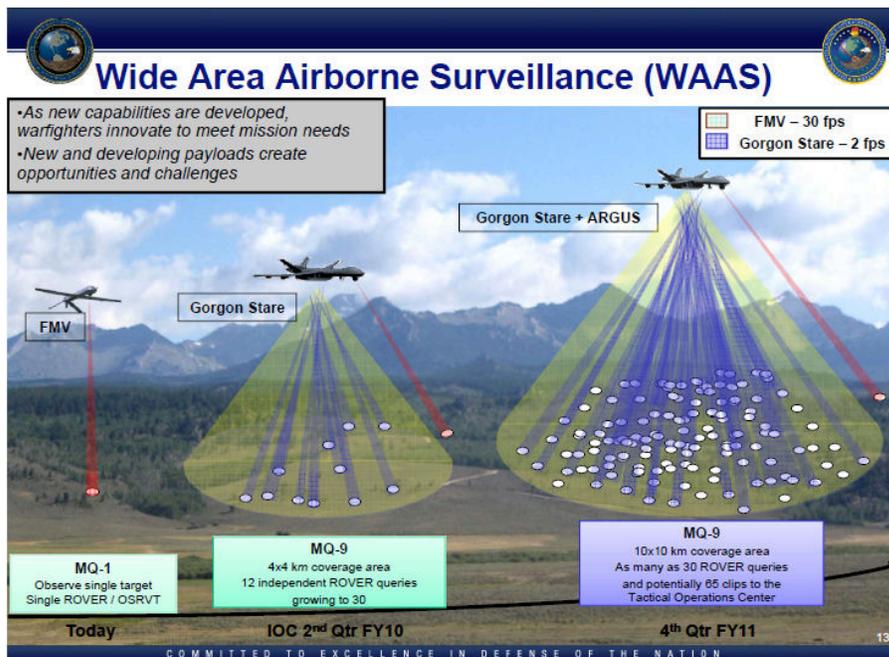


Figure 8. The Gorgon Stare

By its structure, of which surveillance grows into an enormous eye, that covers a vast area by piecing together individual captures, the nine cameras of the Gorgon Stare

⁹⁸ Virilio, p. 38

also are “chipped out” to multiple sources. This entropy of the image, breaks down the syntax of surveillance into a fragmented whole. In order to sufficiently make use of the mass troves of image the Gorgon Stare produces, the Air Force has been taking tips from other sources of realtime image production such as sports institutions. It is reported that the Air Force has worked with Harris Corporation to adapt the same techniques of tagging and instant replay, that ESPN has used for key moments in National Football League videotape and apply it to the war zone. ”Just as a sportscaster can call up a series of archived quarterback blitzes as soon as a player is sacked on the field, an analyst in Afghanistan can retrieve the last month's worth of bombings in a particular stretch of road with the push of a button, officials said.”⁹⁹ That the vision of war is melding with the role of the observer in sports is potent with meaning in the direction that war is moving as gratifying an aesthetic sensibility. In an article by David S. Cloud titled, “Civilian Contractors Playing Key Roles in U.S Drone Operations,” Cloud investigates the growing need for video analysts, has created a greater reliance to hire private contractors in the arena of war. This reliance only grows with the proliferation of technologies such as the Gorgon Stare with its need of 2,000 personnel. Atleast, until the gaze itself is mechanized through artificial visual intelligence. The result of more civilian contractors included in the “kill chain” of war, is the growing ubiquitous culture of war, where the lines between military operations and business for profit become blurred. What could be termed the ‘authenticity’ of military operations or the authority of distance from which the military positions itself, is becoming less evident in the blurring between corporate and military personnel.

The technologies of multiple cameras streaming realtime footage, found in the Gorgon Stare, exist already in a much more fragmented sense with surveillance cameras that are placed all over a city. With the development of the Gorgon Stare, the military has created a streamlined and what could be termed totalitarian function of multiple simultaneous surveillance images, where they all answer to a single regime. That regime is one made up of a structure that has outsourced the gaze, where vision is industrialized

⁹⁹ Nakashima, Ellen and Whitlock, Craig, ‘With Air Force's Gorgon Drone 'we can see everything'’, *The Washington Post*, 2 January 2011, retrieved 7 May 2012, <http://www.washingtonpost.com/wp-dyn/content/article/2011/01/01/AR2011010102690_2.html?sid=ST2011012204147>

and no single author held responsible.

The technological aspects of drone technology all reflect what Virilio terms as the age of ‘paradoxical logic.’ This is “ when the realtime image dominates the thing represented, realtime subsequently prevailing over real space, virtuality dominating actuality, and turning the very concept of reality on its head.”¹⁰⁰ Drone technology and the realtime image it produces allows for direct interaction with the objects and people on the battlefield. The development projects of the Mind’s Eye and the Gorgon Stare, further this transition of ‘virtuality dominating actuality.’ In the direct experience of senses to make meaning, human vision deteriorates in the structure of drone technology, as it was believed to with the introduction of electrical light. The blindspot so inherent on a dependency on the lens creates a loss of connection to a cognitive context. War in the age of digital reproduction reflects a massive shift in the function of the image.

EPILOGUE

¹⁰⁰ Virilio, p. 63

“To articulate the past historically does not mean to recognize it the ‘way it really was’. It means to seize hold of a memory as it flashes up at a moment of danger.”¹⁰¹

Sitting in dark rooms, staring at monitors, refining pixels, and studying for hours, the immaterial image emanating from a monitor is the experience of multiple image makers in today’s advertising, film and photography industry, including that of the digital retoucher. The eyes become weary, and fatigued from staring at light pixels at the same distance from the eye, for hours on end. Focusing and zooming in on areas of the image that need further manipulation make the retoucher blind to an holistic account of the image. Taking a break equals not having to look any longer.

The network of communication behind the system of drone surveillance, is one that encompasses the industrialization of a sense perception. Vision has become a tedious job, one that has required increasingly more eyes to unblinkingly, stare and analyze, what General Cartwright calls, “Death TV.”¹⁰² The technological disembodiment of the eye in drone warfare has bodies in the same state as in the cubicle existence of corporate offices. Technology has made it so that two seemingly very different jobs, one of the digital retoucher and one of a combat soldier in war, have comparatively similar descriptions in their experience. The information age has truly brought about a shift, described by Virilio as the growing experience of “the emancipation of the screen from the TV into an array of ordinary objects.” The screen, like the image itself in a post-modern context are mobile, moving from one medium to another, from one context to another.

The similarities to a corporate environment and war were brought closer when it was reported, in 2009 that Shia insurgents in Iraq had hacked into U.S military drone with a simple \$26USD software. At the time the U.S military broadcasted its video feed via an unencrypted data stream. At the time of writing this thesis, reports on a ‘Tacocopter,’ an unmanned drone device that would deliver tacos to your location, through GPS and your smart phone. The ‘Tacocopter’ was a complete hoax, but was created by MIT student, Star Simpson, because as she states, “it was so I would keep

¹⁰¹ Benjamin, p. 255

¹⁰² Lake, Eli, ‘Drone Footage Overwhelms Analysts,’ *The Washington Times*, 9 November 2010, retrieved 7 May 2012, <<http://www.washingtontimes.com/news/2010/nov/9/drone-footage-overwhelming-analysts/?page=all>>

thinking about how to make something like this work, and partly it was to do the same for other people. A vision. Like what cyberpunk did for the Internet, mull the possibilities, give people things to think about...we basically only hear about quadrotors in scary contexts, and I think it does give that fear and emotional tension a safe and hilarious outlet.”¹⁰³ The concept garnered a lot of attention, as reports on the ‘Tacocopter’ hit headlines in major newspapers and news networks. It was the one of the first pop culture references in the United States to refer to the reality of drone technology, ofcourse only in reference to the demand for tacos. The application for the commercial use of drones, and of the ‘Tacocopter,’ are currently met with hard restrictions by the U.S Federal Aviation Administration. Drones are prevented from being used for commercial purposes, so far. Simpson states, “Honestly I think it's not totally unreasonable to regulate something as potentially dangerous as having flying robots slinging tacos over people's heads...On the other hand, it's a little bit ironic that that's the case in a country where you can be killed by drone with no judicial review,” referring to the recent assassination of the Anwar al-Awlaki, an American born member of alQaeda, killed by a drone attack, on September 30, 2011 without trial. Simpson’s dialogue on the ‘Tacocopter’ does bring up a poignant question. The question is not necessarily about the reality of the immediacy of tacos at our fingertips, but rather at the democratic utilization of a technology such as drones, that currently functions primarily in a totalitarian structure. The question that is posed resurrects Benjamin’s last lines of his essay, in that which politics renders aesthetic is Fascism. The democratic possibilities of the scopic regime of visual reproduction technologies have already been realized in the role social networks on the internet have played in the recent revolutions occurring in the Middle East, termed the ‘Arab Spring.’

Today’s use of drone warfare is setting a precedent for how technology will be utilized in future wars. Presently, the technology of drone warfare is in the hands of the United States, tied to a justification of its use with the protection of the ideology of western democracy. Yet, like all technocratic tools of warfare, the weapons themselves do not remain tied to any ideology. We are presently at an experimental stage of drone

¹⁰³ Bonnington, Christina, ‘Tacocopter: The Coolest Airborne Tac Delivery System That’s Completely Fake,’ *Wired*, 23 March 2012, retrieved 20 May 2012, <<http://www.wired.com/gadgetlab/2012/03/qa-with-tacocopter/>>

warfare. Its technological developments are fielded ever faster, as the pace of war increases. Throughout history, war has been used to experiment on 'the other,' with the latest technologically advanced forms of killing. During the Vietnam War, the use of Agent Orange, a chemical that caused the rapid maturation and death of vegetation was sprayed by the tons of millions over Vietnam and Cambodia. The effects of which are still being seen in the deformed births of a new generation. Today's technological advancements in war are tied to the technologies of visual reproduction. The ability to envision the enemy, the battlefield, death, and patterns of life are increasingly becoming the ingredients of victory in war. The development of this phase of the 'paradoxical logic' with the power of the image over the direct experience has led to a great social shift in the 21st century, affecting various realms of the senses and the way society relates to reality. The site of war and warfare possess great consequences from this shift, not in the least because of its transformative position in political and social conflicts, but also because of its potential to threaten human existence itself.

The advancements of technology in war and at large are once again at the forefront of having the capacity to formulate an entirely different way relating to the world. In the end, the profound transformation is not dependent on the technological expression but rather in the ethical. As Flusser states, "If we do not manage-by going beyond ideology- to find a way of approaching a solution to the ethical problems of design, than Nazism, the Gulf War and similar events will go down in history as merely the opening stages of a period of destruction and self-destruction. The fact that we are beginning to wonder about such questions gives reason for hope." ¹⁰⁴

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