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The Rhetoric of Scientific Authority: A Rhetorical Examination of _An Inconvenient Truth_

Alexander W. Morales
University of South Florida, awmorales@mail.usf.edu

The Rhetoric of Scientific Authority: A Rhetorical Examination of *An Inconvenient Truth*

by

Alexander W. Morales

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Major Professor: David Payne, PhD
Frederick Steier, PhD
Nathan Johnson, PhD

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Abstract

This thesis project examines how scientific authority is produced through rhetorical practices instead of the "information deficit" model of science communication. By conducting a rhetorical analysis of the science documentary *An Inconvenient Truth*, this project demonstrates how the documentary format itself and the film's leading agent, former United States Vice President Al Gore, attempt to persuade audiences through building degrees of scientific authority by employing multiple rhetorics or narrative themes of science to bolster the scientific facts supporting anthropogenic climate change. Additionally, I demonstrate how these narrative themes parallel three scholarly themes within the rhetoric of science literature: science as a story of perpetual discovery, science as reference, and science as an agent of moral prosperity. I argue that scientific authority is best understood through these multiple rhetorics of science which, in the dramatic case of *An Inconvenient Truth*, require Gore to overcome certain social and cultural obstacles by appealing to the values and sensibilities of his audience. Successful scientific persuasion, therefore, depends more on the elements of rhetoric rather than solely relying on accurate and verifiable scientific information as the crux of successful persuasion.

Chapter One:

Introduction

The prominence of science in modern society is surely connected to its ability to define problems and provide solutions, even though the processes of science may not be known or understood by most people. Science has "ethos," or a rhetorical character that appeals to the sensibilities and values of a people, and directs them to accept certain "truths." Scientific consensus, achieved through the interactions and methods of scientists, speaks these "truths" with credible authority, which is either accepted or rejected, ignore or implement, for a host of material, psychological, and cultural reasons having nothing essential to do with the actual processes of scientific consensus itself. In this regard, consider the consensus supporting anthropogenic climate change. According to ninety-seven percent of the world's climate scientists, two key conclusions have been made: 1) that human beings are filling the atmosphere with carbon dioxide at a faster rate than our plants and oceans can absorb; and 2) the earth's climate is warming.[1] These carbon emissions are a direct result of the burning of fossil fuels, along with other related causes such as deforestation (Lawrence & Vandecar, 2015). While the consequences of these activities have become clear to an overwhelming number of scientists, within climate change discourse the authority of science is constantly met with skepticism and resistance. Usually, this resistance is expressed as arguments that stress the benefits reaped from polluting activities: fossil fuels provide

[1] This claim is based on an article by Cook et al (2016) called Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. Authors of seven consensus studies co-wrote the article to settle the consensus debate. The current percentage of published academic articles that agree that human activity is responsible for climate change is 97%.

a means of energy adequate to propel industry forward and deforestation provides the obvious benefit of economic gain. However, to the scientifically educated, there is no doubt that these activities now threaten the well-being of people all over the world. As a result, it seems apparent that scientific consensus—the agreement about observations and their corresponding facts—is no longer enough to persuade and solicit responses necessary to solve this global crisis.

This atmospheric observation and the corresponding public advocacy that emphasizes this consensus of scientific facts are by no means recent developments. Public climate change advocates, scientists, politicians, and educators have been warning the world of the harmful consequences of rising atmospheric carbon dioxide levels since the mid-1950's.[2] The vast majority of this advocacy has been based on the "information deficit" model of communication, which attributes public skepticism and hostility towards climate change – and by implication science generally – to a lack of understanding and information (Dickson, 2005). In other words, this all too prevalent means of scientific persuasion is based on the premise that people do not care or believe in climate change simply because they are scientifically illiterate or because they have not directly experienced the devastating consequences of this global crisis.[3] In short, this assumption suggests that climate change disbelief is a problem of accessibility rather than a problem of legitimacy (Collins & Evans, 2002); as a problem of finding "truth" rather than accepting it. However, in this project I explore the resistance to climate change and scientific authority by looking at a sage climate change case: Al Gore's documentary *An Inconvenient Truth* (Guggenheim, 2006) (hereafter

[2] See Richard Hamblyn's (2009) article The Whistleblower and the Canary: Rhetorical constructions of Climate Change, which traces a history of climate research studies, publications, and climate change debates and is concerned with the discursive approach to examining historical dimensions of climate change discourse. Also, consider Revelle's (1982) journal article Carbon Dioxide and World Climate published in *Scientific American*, which is an earlier, more influential text.

[3] See *National Geographic's Explorer: Bill Nye's Global Meltdown* (2016), which depicts Bill Nye discussing what he calls the "five stages of climate change grief." He demonstrates how climate change deniers, or skeptics, go from denial to acceptance about this issue.

AIT). This film is a significant artifact in climate change discourse and, as I shall show, demonstrates the fallacy of the "information deficit" assumption by examining Gore's rhetorical practices rather than validating certain scientific facts. In doing so, I ask a fundamental question about climate change discourse: where does the authority of scientific facts come from and under what circumstances and conditions are they legitimated through discourse?

If we have learned anything about climate change discourse over the last fifty years it would be that scientific facts do not always persuade people (Bazerman, 1988; Ceccarelli, 2011; Collins & Evans, 2002; Fahnestock, 1999; Myers, 1990; Sullivan, 1991). Not only do facts not seem to persuade, but in certain cases neither does first-hand experience of the devastating impacts of climate change (Hulme, 2009). The threat of this crisis is not a fiction for millions of people around the world who are suffering from the effects of a warming climate. Rising ocean levels are flooding coastal communities, fiercer storms are tearing through landscapes, and as a result foreign and domestic economies are losing millions of dollars destabilizing human prosperity all over the world. In fact, some scholars argue that climate change effects triggered widespread political instability in impoverished regions and massive refugee migrations all over Europe and the United States (Hartmann, 2010). From these observations, it seems clear that science faces a challenge that it is ill-equipped to overcome on its own; to persuade and educate non-scientists about what science does, why we should trust it, and the potential benefits it can achieve; all of which, I argue, are central to the question of scientific authority in representations of anthropogenic climate change as a scientific fact.

As one of the most pressing public scientific controversies of our time (Ceccarelli, 2011), climate change seems to exist at the heart of society's skepticism and frustration about science (Latour, 2004a; 2007). This becomes apparent in debates over the legitimacy of scientific facts and the authority they should have to influence human affairs. This controversy threatens our planet

and its inhabitants from warming climate implications, but also the willingness of citizens to cooperate in functional democracies (Collins & Evans, 2002; Majdik & Keith, 2011; Wynne, 2003; Dewey, 1927). As a result, many scholars subsequently became interested in the perception of climate change policy initiatives (Antilla, 2005; Betsill & Bulkeley, 2007; Hartmann, 2010; Kurz, Augoustinos, & Crabb, 2010), especially since political lines are often drawn over legislation heavily influenced by science expertise (Collins & Evans, 2002). What makes these issues particularly divisive are the ways in which we discuss and attempt to persuade others of our own ideals. When it comes to climate change, there is often a dramatic dialectic present within the discourse. By this I mean that within many climate change narratives there is a clear protagonist and antagonist (the climate believer and climate denier; the agent of progress and the servant of regress; the enlightened and the benighted; and so on). These narratives function to contextualize scientific authority and represent the legitimacy of scientific facts.

If we acknowledge that people are not always persuaded by the facts produced through scientific practices, by the actual articulations provided by scientists themselves, then what does it take to persuade people about climate change? What does it take to overcome society's paradoxical admiration and skepticism of scientific authority as it pertains to this present climate crisis? What could scientists, activists, and educators be missing? To address these questions, one must think of this issue not solely as a scientific, political, or social controversy. Instead, we should address the issue of climate change and the resistance to scientific facts as interconnected "rhetorical problems," which is a perspective that is widely acknowledged (Ceccerelli, 2011, 2013; Condit, 2010; Eubank, 2015; Golinski, 2005; Harris, 1997; Herndl & Cutlip, 2013; Kuhn, 1992; Lessl, 1985; Myers, 1996; Segal, 2005; Sullivan, 1991). In other words, to understand the conflict inhabiting climate change discourse we must first begin by looking at what it means to say that something is "scientific" and what it means to infer that science possesses authority in particular representations

(what language is being used, what is the context of the event, what is the issue being supported, and so on).

In this thesis project, the reality of anthropogenic climate change as a scientific fact, as threating human well-being is a given. My concern, however, regards the continuous skepticism, denial, and resistance to facts supporting the existence, causality, and potential consequences of anthropogenic climate change. In this project, I operate under the assumption that this resistance is a consequence of mistrusting scientific authority generally rather than a problem of scientific illiteracy or "anti-intellectualism." As noted, when considering the hostility targeting climate change and other scientific related issues, it seems that this frustration and resistance to facts is often directed at what Collins and Evans (2002) describe as science's broader "problem of legitimacy." This is one of the reasons why certain persuasive strategies are often ineffective—particularly those that take the "information deficit" model approach—because while many do provide accurate scientific evidence, the mistrust of science seems to outweigh the potential benefits it can bring to modern society. What is particularly of interest, therefore, concerns how facts are spoken to the public in the voice of scientific authority and how science is regarded by the public. In order to address this interest, we must approach this issue by considering how particular climate change messages address the issue of scientific authority (i.e. the "truth" of the facts) and hence, focus on a what Steven Schoen (2012) calls a "rhetoric of facts" and the ethos of science as culturally embedded and as audience-variable.

Where does the general public go to hear about science? Surely the nightly news affords people the opportunity to hear about things classified under the ethos of science, signified by descriptive phrases like "scientific discovery," "expert findings," and "recent developments." For example, just this month news articles reveal a new weight-loss procedure "developed by scientists" that makes one's stomach retract inward like an "accordion without surgery" (Miller, 2017). If this

does not interest people about the wonders and advancements of science, maybe the recent developments by scientists at Nike will. These scientists reportedly attempted to develop training regiments that would allow an athlete to run a marathon in under two hours; an act that has never been accomplished before (Chow, 2017). These examples are mentioned to make the point that scientific messages, and I use this phrase loosely here, are extremely common and much of the time hold no legitimate scientific merit. However, even if they did how would non-scientists know the difference between an actual scientific study and an article that was merely advertised as one, signified by the aforementioned descriptive phrases. It may be that the current problem of scientific denial and resistance is a result of a very simple premise: that scientific authority may not come from practicing scientists at all. Instead, maybe scientific persuasion is most effective when audiences come to trust and adopt the stories of science rather than true, verified, and legitimated scientific practices performed by qualified scientists. In this regard, audiences would probably be more susceptible to these two attempts at scientific persuasion if they were already interested in the messages they advance: how to lose weight without exercise or surgery and how to improve one's marathon time. The use of scientifically relevant descriptive words and associations may not be the most rhetorically significant factor. Rather, the credibility and success of these messages may depend on the likelihood of audiences identifying with the stories advanced by and signified as scientific.

This observation leads me to search for persuasive climate change messages that exist as significant rhetorical texts over and across multiple discourse communities. In doing so, I will be able to understand the problem of scientific persuasion in a manner that questions an audience's relationship to the alleged or proposed "facts," and what symbolic and strategic resources exist to put them in a different, more immediate, or motivated relationship to those facts. Such texts may not fit the scientific standards as established by actual scientists, but rather use the existing

narratives familiar to particular audiences. This "rhetorical problem," therefore, includes people's history with certain subjects and the many elements that create resistance to accepting or being motivated by information or scientific "truths" (Campbell, 1982). My objective, then, is to find significant climate changes messages that advance an array of narratives commonly perpetuated in climate change discourse and how those narratives function rhetorically throughout the text.

The most renowned and widely discussed climate change persuasive document is the award winning documentary AIT. Directed by Davis Guggenheim, AIT was first revealed at the Sundance Film Festival and made a case for anthropogenic climate change. The film's main objective was to inform non-scientific audiences about this global crisis and instructed them as to how they could contribute to its resolve. Starring former United States Vice President Al Gore, the film was predicated on Gore's long political and personal history with this issue and utilized his political ethos to advance its persuasive ends. As a piece of science pedagogy, AIT made its impact by adopting a popular strategy for advancing scientific material to non-scientific audiences in a way that did not solely rely on the ethos of science as its central means of legitimacy. Utilizing the documentary format allowed Gore and Guggenheim to advance multiple narratives, each of which situated climate change differently by creating multiple rhetorics that provided an array of culturally significant variables that audiences could identify with. Initially the film seemed to be an instant hit after winning two Academy Awards for Best Documentary Film and Best Original Song, as well as becoming a top-grossing hit in the box-office: currently sitting as the eleventh highest grossing documentary to date (http://boxofficemojo.com). This lucrative film weaved together climate change statistics pertaining to the correlation between climate, weather patterns, and carbon emissions with Gore's personal struggles and lifetime commitment to resolve costly climate implications. The resulting film advertised climate change as a problem that transcended all ideological categories. This was a result of the films emphasis that climate change was more of a

political and moral issue than a scientific one. In fact, the terms "science" or "scientific" were never advertised on the DVD version of the film. Gore's political experience, however, was emphasized on the front of the DVD's cover.

AIT was essentially framed as an advocacy cry, calling attention to the effects of rising carbon emissions that will eventually make Earth uninhabitable if human beings do not rethink their current means of energy consumption. The foundation of the film was developed around a series of projects completed by Gore over the last fifteen years prior to the film's release. A few of these projects included Gore's earlier publications *Earth in the Balance: Ecology and the Human Spirit* (1992) and *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It* (2006). Each of these projects advanced the same thesis as the film and helped established early support for the project. Gore's political and personal testimony regarding his long history of climate change advocacy provides an ethos that extends beyond mere scientific explanations of climate change, which allowed the film to broaden the scope of its intended audience. As a result, AIT provides an array of discourses, all providing information about the rhetorical efficacy of this significant piece of pedagogy.

Since the film's release over a decade ago, Gore's illustrated lecture remains significant as a "must watch" to some, and an example of "liberal propaganda" by others.[4] Many reviews of the film judged it by the accuracy of presented scientific evidence while others harshly criticized Gore's personal testimony, claiming that the film's main function was to circulate liberal values (Suro, 1992). These differing systems of critique resulted in controversial perspectives regarding the legitimacy of the presented scientific content, Gore's underlying intention, and the overall objective of the film itself (i.e. to generate revenue; advocate for climate change resolve; propagate and

[4] See Kreutzer's (2016) article An Inconvenient Truth: Liberal Climate Inquisition Can't Explain Past Temperature Changes.

reinforce certain ideologies). While AIT had financial success, climate change still does not seem to be a crucial political issue to millions of Americans. This contradiction is one of the reasons this film exists as a significant pinnacle in climate change discourse (Bergin 2009; Eubank 2015; Johnson 2009; Olson 2007; Rosteck & Frentz, 2009; Schoen 2012). For every climate change advocate that praises the film for its persuasive and pedagogical success, there is always a climate change skeptic or denier that blames this film, and Gore in particular, for perpetuating the "conspiracy" that is anthropogenic climate change.[5] From these observations, AIT exists at the heart of public climate change advocacy on both sides of the political spectrum. However, certain attitudes towards its existence and influence, whether it be famous or infamous, depends on the ideological commitment of the viewer. These rhetorical factors produce relevant questions pertaining to the thesis of this project: why did some people demonstrate great admiration for the film while others saw it as a form of propaganda? Why were some people more willing to accept the presented scientific evidence than others? How was Gore's presence in the film used to persuade about climate change and build degrees of authority around this issue?

Therefore, I have selected AIT as the central focus for studying the rhetorical manifestation of scientific authority through representations of scientific facts for two main reasons. First, AIT has had a controversial influence on international climate change discourse. While some consider the film to be a liberal conspiracy crafted by the Chinese, others remember this film as an "intellectually exhilarating piece of pedagogy" (Stevens, 2006). The paradoxical admiration and discontentment makes AIT an interesting and extremely fruitful text for studying the rhetorical implications of such an important public scientific controversy. Second, as a documentary film,

[5] For examples of each of these perspectives, see television celebrities such as Bill Maher, Neil deGrasse Tyson, and Bill Nye for pro-AIT sentiments. Conversely, see the current Administrator of the EPA, Scott Pruitt, whom has often cited this documentary as the infamous film that perpetuated the lie of anthropogenic climate change.

AIT was able to place scientific content in front of a wider general audience. The documentary format itself has an extensive history of picturing the nuances of scientific practice in ways that leaves the erratic, elusive fabric of "reality" intact (Raijmakers, Gaver, & Bishay, 2006). In other words, the documentary format has certain rhetorical implications that are best suited to convey this topic in a manner that appeals to a broad array of audiences through multiple cultural themes and audience-variables (Schoen, 2012).

Both of these factors contribute to AIT's remembrance. As a major attempt at mass scientific persuasion, AIT continues to stands out as a pivotal and polarizing artifact in the history of climate change advocacy. But why? How does a film become more significant than other global initiatives?[6] What does this film do that other means of advocacy and persuasion do not? In this thesis project, I analyze AIT in order to understand how this film crafts the issue of climate change as a "rhetorical problem" and statement in the hope of addressing these questions. I do so by considering the larger scope of rhetoric, which allows me to understand how and why this significant climate change text had so many differing responses. I first engage in a descriptive analysis of the film which allows me to cultivate an understanding of AIT's inner rhetorical workings. I do so by focusing on the film's selection of language, structure, arguments, evidence, and its uses of purpose, tone, audience, and strategy, along with the cultural context of each rhetorical situation. The goal of engaging this topic in this way is to provide a perspective that offers a stronger understanding of the complexities of climate change discourse and how this film functions to address those complexities. Following that, I examine the film's three thematic and dramatic narrative strands that illustrate three ways scholars have examined the rhetoric of scientific authority in the past. In doing so, I provide an explanation as to how AIT's rhetoric is culturally

[6] Consider the United Nations Climate Change Conference, which took place in Paris, France in 2015.

embedded and how its persuasive success is predicated on the development of scientific narratives more than validated scientific content.

Before moving on, I find it necessary to discuss the background of Al Gore and what he brings to this film specifically. Without a brief rhetorical history of the films leading agent, I would be unable to provide certain cultural presumptions that must be taken into consideration. From such a history, I cultivate a thorough foundation that will establish Gore's political and personal influences allowing for a proper rhetorical examination of AIT's treatment of scientific persuasion: what it does, how it does it, and why.

A Rhetorical History: Al Gore as Rhetor

Through AIT, Al Gore became the leading agent for political and social environmental advocacy around the issue of climate change. For over four decades, Gore has been an international leader in the movement to fight against the harmful implications of this dangerous global crisis. Most notably remembered as the 45th Vice President of the United States and running mate to the 42nd President Bill Clinton, many people do not realize that Gore was entangled with climate change advocacy from early on. With his political participation in international climate change advocacy and former educational experiences, Gore's appearance in a film such as AIT should come at no surprise.

In 1965, Gore enrolled as an English major at Harvard. Initially apathetic towards his course work, he developed an interest in the harmful effects of rising carbon emissions after taking a class with the late American scientist Rodger Revelle. Revelle is credited as being the first person to propose measuring the carbon dioxide levels in the Earth's atmosphere. What captivated Gore during this time was Revelle's involvement with the Atmospheric Carbon Dioxide Program (ACDP), which first took place between 1956 and 1958 at the Mauna Loa Observatory in Mauna Loa, Hawaii. During the planning period for the International Geophysical Year, which was an

international scientific project that took place from July 1, 1957, to December 31, 1958, Revelle collaborated with the Scripps Institution of Oceanography and began working on the ACDP. Charles David Keeling was brought on to head the program on July, 1956, and assisted Revelle with his experiments.

Eleven years after Revelle shared his research with Gore's class at Harvard, Gore decided to quit law school and ran for the House of Representatives. During the late-1970's Gore sat on the Science and Technology committee, and the Energy and Commerce committee where he initiated the first hearings on climate change. His performance in Congress lead him to re-election in 1978, 1980, and 1982. In 1984, Gore was elected for a seat in the United States Senate where he continued to raise awareness on this issue through science round tables and the like. In 1988, Gore unsuccessfully ran for President of the United States. He claims that his run was in part to raise awareness of the pressing climate crisis.

Gore's history of promoting the issue of climate change along with his service in Congress and the Senate made him a fitting running mate for Clinton in 1993. On the campaign trail leading up to Election Day, Clinton said the following to a crowd of supporters:

> "The running mate I have chosen is a leader of great strength, integrity and stature, a father who like me loves his children and shares my hunger to turn this economy around, to change our country and to do it so that we don't raise the first generation of children to do worse than their parents" (Ifill, 1992).

Both Republicans and fellow Democratic Party members expressed concerns about the ticket. Many opposing Republican campaign officials claimed that Clinton was a 'far left candidate,' which many right-wing critics believed was too far from mainstream. His decision to appoint Gore as running mate was seen as an attempt to reframe the campaigns image through harmonizing the ticket. Frederic V. Malek, the manager of the Bush campaign, stated:

> "We think it shows Clinton is operating from weakness… And he's chosen somebody to cover those weaknesses -- his lack of a military record, his association with liberal social values, and his need to strengthen himself in the South, his own home region" (Ifill, 1992).

Many Democratic affiliates claimed the opposite, expressing concerns that the pairing made for an unbalanced ticket. This symbolic resurgence of the south was doubted by many considering that an all-southern ticket had not won the presidency since Andrew Jackson and John C. Calhoun in 1828. Rev. Jesse Jackson, who sought the Democratic Presidential nomination noted: "I have deep concerns about the ticket. It takes two wings to fly and here you have two of the same wing" (Ifill, 1992). These critiques shaped the ways in which Gore was framed in the campaign. Gore's image was built on a paradigm of moderation and bipartisanship, showing support for social programs while standing firm on maintaining a strong military – demonstrating that a Democrat could appeal to voters in both political parties. While the campaign was not shy about its environmental and social beliefs, both Gore and Clinton backed away from advocating government intervention programs and focused more on being "centrist candidates." This persona was developed along the campaign trail where Gore and Clinton made frequent public appearances that were less-controlled and in closer circumstances. For example, they would often go into factories, approach crowds, traveled in buses instead of jets, and in doing so became the young, approachable ticket. Gore became the strong, friendly centrist whose southern charm made him more appealing to a larger audience.

Towards the end of the campaign, Gore began to fully embody his centrist persona. He began speaking with force about the Bush Administration by making comments about how they have been trying to divide the people of this nation for too long, and began developing a rhetoric of unification. Gore became known for concluding many of his campaign speeches by saying: "They've run out of time. They've run out of excuses. They've run out of ideas, and on November third, with your help we're going to run them out of office" (Suro, 1992). Clinton often borrowed this ending statement, which provoked many reporters to describe Gore as Clinton's "political twin." In 1997, following their re-election, Gore traveled to Kyoto, Japan to support the Kyoto

Protocol, which committed state parties to reduce their carbon emissions based on the premise that anthropogenic climate change was a threat to the planet as a whole. Initially opposed by the U.S. Senate, Gore dramatically signed the protocol in 1998, declaring this moment as a historic cornerstone for global environmental policy.

At the turn of the twenty-first century, Gore continued to speak at numerous conferences and summits all over the world, addressing the ignorance and misconceptions that revolved around this issue. At the time, many political pundits saw Gore's behavior as politically motivated (Revkin, 2006), as in establishing a particular reputation that could potentially lock in a higher office position. Even though Gore made his intentions explicit, framing his sole interest as the securement of a safe future by awakening the public to this deadly problem, the sigma of "liberal propaganda" increased as climate change became more of a polarizing political issue. Gore and his staff constantly denied questions about a potential 2008 presidential run. However, many fellow Democratic Party members fully expected Gore to emerge as a strong opponent running against then Senator Hillary Clinton in the Democratic primary (Revkin, 2006).

This all led to the 2006 release of AIT which was, as one may suspect, received controversially. As noted, many praised the film for propagating such an important message in a captivating manner (Rainer, 2006; Revkin, 2006; Stevens, 2006; O'hara, 2006). In fact, some scientists that initially quibbled at the film's minor scientific mistakes were inclined to agree with the reaction of Eric Steig, a University of Washington geochemist, who noted: "The small errors don't detract from Gore's main point, which is that we in the United States have the technological and institutional ability to have a significant impact on the future trajectory of climate change."[7]

[7] Dr. Eric Steig posted this comment on the Web log called realclimate.org after seeing the film at an early screening. Andrew Revkin later recited the quote in his NY Times article 'An Inconvenient Truth': Al Gore's Fight Against Global Warming published on May 22nd, 2006.

Others, as suggested, were not as accepting. These factors are crucial to the cultural significance of AIT. They demonstrate that this film was not a bipartisan attempt at advocating for a non-polarizing issue. Rather, AIT emerged as a political controversy well before it was seen as a scientific discrepancy. Without acknowledging this fact, any rhetorical analysis of AIT would be inconclusive. Lastly, now that I have presented a brief rhetorical history of Gore, the context AIT arouse out of, and how these cultural implications went into the making and presentation of the film, I will now provide the theoretical and methodological outline that will situate this project within the field of rhetoric of science, technology, and medicine. Additionally, this will provide an explanation regarding how this project contributes to the field and to the study of scientific authority through the rhetorical analysis of AIT.

Doing Rhetoric of Science Work

The study of science in society has a robust critical tradition. Scholars particularly interested in the rhetoric of science and science studies are quite familiar with the multiplicity of diverse realities that manifest through communal scientific engagement. This research has explored the dimensions of science expertise within democracy (Collins & Evans, 2002; Majdik & Keith, 2011; Wynne, 2003; Dewey, 1927), notions of incommensurability through "boundary objects" (Graham & Herndl, 2013; Star & Greisemer, 1989; Wilson & Herndl, 2007), metaphoric constructions of science (Ceccarelli, 2011, 2013), public policy initiatives on scientific matters (Antilla, 2005; Betsill & Bulkeley, 2007; Hartmann, 2010; Kurz, Augoustinos, & Crabb, 2010), and the material influences and embodiment of scientific facts and procedure (Graham & Herndl, 2013; Mol, 2002; Latour, 1999, 2012; Keller, 1995). In addition, many scholars are showing interest in notions of post-humanism (Bennett, 2010; Coole & Frost, 2010) and how non-human agents "act" in society as democratic subjects (Crowley, 2006; Flemming, 2008; Hauser, 1999; Rice, 2012). Each of these research areas cover a variety of crucial questions and dilemmas associated with scientific

understanding and practice; much of which overlap when considering their methodological and theoretical underpinnings.

One of the most generalizable statements we can make from this literature is that "science" is a term on the move.[8] Its definition and function depend on how it is described, storied, and contextualized through representations of scientific facts. Even with its relativity, however, it is helpful to characterize general associations made apparent within scientific descriptions as those focusing more so on epistemological questions about science (ways of knowing scientific facts) and those focusing on ontological questions (ways of doing, being, and embodying scientific practice). This distinction is not binary, but does identify differing ways of understanding and describing how a culture thinks and feels about science. In other words, each perspective can fundamentally change the application and consequentiality of scientific representations and how general audiences respond to them; influencing the overall ethos and authority we ascribe to science as a knowledge producing field. For example, should people trust scientific facts because of science's central function of revealing objectivity (otherwise known as the science as epistemic argument) or does good, credible science come down to representations of the embodied practices of actual scientists (otherwise considered as pragmatic approaches)? In this regard, the effectiveness and failure of scientific facts to persuade about science is often characterized as one or the other—as claims about true knowledge or good practice.

Since climate change arguments, which are built on the authority of scientific facts, are constantly being questioned for their general legitimacy and effectiveness (Collins & Evans, 2002) to solve problems and to secure human longevity, it is necessary to examine how these arguments are constructed through particular discourses. To examine how scientific authority is depicted

[8] I attempt to imitate Conquergood's (1995) definition of "performance" as a term on the move, which simply highlights the disagreements that follow attempts to stabilize universal definitions.

through public representations, we must not assume that all scientific depictions are universal or even connected. We should not reduce science communication to mere information, universalize a definition of science, or reduce science controversies to an epiphenomenon (Goodnight, 2005). Rather, rhetorical inquires of science should question the descriptive language and related narratives that contextualize the authority of scientific facts. This is where the study of rhetoric becomes significant and beneficial. Like science, the term "rhetoric" draws from many different definitions. When used in current news headlines and political speeches, it is commonly spoken in a pejorative tone as in the phrase "empty rhetoric" inferring meaningless language. This association is also used in public science discussions to separate language from material conceptions of reality as in the statement: "enough with the deceptive rhetoric, it's time to address the pressing issues right here in the real world." This common impulse reflects our present realistic frame when thinking about science, nature, and reality, which has been the focus of many scholars in the rhetoric of science (Herndl & Cutlip 2013). However, this discrepancy between "reality" and representation is one of the great conflicts within this area of study. This discrepancy has been challenged by scholars who seek to overcome the inabilities of language to hold representations accountable to material practice (Bazerman, 1988; Latour, 1999, 2004b), which is especially prudent in the study of science. This conflict will be addressed in depth later on, but for now my interest is in a more general definition of rhetoric and how it can provide a better means of understanding the authority of science through a "rhetoric of facts" (Schoen, 2012).

As Burke (1969a) proclaimed, "Wherever there is persuasion, there is rhetoric. And wherever there is meaning there is persuasion" (p. 172). Rhetoric is the doings of symbols which create the possibilities for social experiences that solicit cooperation. Examining a rhetoric of science doesn't merely describe the style of language used in representations, but instead addresses the cultural presumptions and motivational choices formed through the "doings" of symbols.

Burke (1969b) also observed that people use these symbols as terms of drama and, by examining the actions of dramatistic terminology, that we can understand the functions of motives used within a discourse. Burkean critic David Payne (1997) points out that rhetoric is "a compass for dramatic action" because of how it allows the critic to "point out what is at stake, for whom, by affixing labels to activities" (p. 265). Without these labels, or descriptions, people would be unable to describe their own attitudes, beliefs, and interpretations, let alone the complexities of scientific inquiry. Keeping this definition in mind, the study of climate change as a "rhetorical problem" is thus guided by a rhetorical perspective: that "truth cannot walk on its own legs. It must be carried by people to other people. It must be made effective through language, through argument and appeal" (Campbell, 1982, p. 3), and thus through symbolic action. If, however, we recognize that science itself is rhetorical then we must acknowledge that it possesses its own vocabulary rife with its own symbolic implications that associate certain issues that are considered, in any regard, "scientific" (e.g. climate change).

Many scholars have used the theories and critical vocabulary of Burke in examinations of scientific discourse as a means of questioning the symbolic context and history behind representations of science in culture (Benson, 1980; Benson & Anderson, 2002; Bergin 2009; Ceccarelli, 2013; Eubank, 2015; Gronbeck, 1977; Johnson 2009; Olson, 2007; Payne, 1989, 1997; Rosteck & Frentz, 2009; Schoen, 2012). Most of these examinations provide descriptions of science as storied depictions, or "dramas," and demonstrate how and why they are appealing to particular audiences through symbolic appeals. What is missing, however, is how these storied depictions, identified through specific terminologies, connect to epistemological and ontological conceptions of science as articulated within recent rhetoric of science literature. These vocabularies contribute to a more general theory of science communication and provide ways for rhetorical scholars to

form sensible understandings of how rhetors and audiences forge shared conceptions of science through common rhetorics.

The focus on rhetoric has been expanding in the field to make both rhetoric and science more accommodating in the twenty-first century. For example, J. L. Austin's (1962) notable *How to do Things with Words* has had a resurgence in the rhetoric of science field by expanding how scholars think of rhetoric's functionality (Herndl &Cutlip, 2013). Using Austin as fundamental to this perspective, notions of rhetoric have extended beyond symbolic action to also include a more general description of how people do things in the world with words, models, graphs, tools, simulations, games, and visuals. This definition, while practical and beneficial to the field, does not concern the same definition of Burke's rhetoric. Instead, this broader conception of rhetoric as the functionality, practically, and consequentially of words in the world drives many scholars to examine the relationship between rhetoric and materiality (Rai, 2016; Selzer & Crowley, 1999; Blair 1999; Greene, 1998) and extends post-human and new-materialist theories (Bennett, 2010; Coole & Frost, 2010) that attempt to dismantle the existing blockade separating the human/ non-human distinction and instead characterizes them as coexisting "actants" (Latour, 1999) that equally contribute to the reality of science. This rift in the understanding of rhetoric as it pertains to the rhetoric of science studies, I argue, is not that divided at all. Where there seems to be difference is merely a divergence in how scholars read the storied depictions of science as either "dramas" or epistemological explanations; as narratives of discovery or simply ontological accounts. As I continue, I hope to align the two perspectives to demonstrate how they both are important when understanding the authority of scientific facts through the storied depictions of climate change in AIT.

Rhetorical inquiry has provided scholarship on the persuasive accounts of public scientific representations—particularly on issues related to climate change—through a range of media, which

provide multiple accounts demonstrating how scientific authority is articulated in culture. One of the most popular media discussing science take the form of the science documentary. This medium of public scientific engagement has been the focus of many scholarly examinations interested in the rhetorical dimensions of the documentary format (Darley, 2003; Jeffries, 2003; van Dijck, 2006; San Deogracias & Mateos-Pérez, 2013; Schoen, 2012). Certain rhetorical inquiries pertaining to this format quite often fall prey to merely recognizing the contemporary aesthetic strategies which negate content and solely focus on a medium's form or style (van Dijck, 2006). While this methodological focus is not employed here, this theme of questioning how particular texts, mainly science documentaries, function to represent the authority of scientific facts is of interest.

In Communication Studies, many scholars have approached such documentaries from a rhetorical perspective (Benson, 1980; Benson & Anderson, 2002; Gronbeck, 1977; Rosteck & Frentz, 2009; Schoen, 2012). As Schoen (2012) observes, much of the scholarship addressing documentary forms in popular culture have evoked questions of truth, power, and conceptions of reality. He states:

> "Indeed, the power of documentary images is often connected to their evocation of material reality, but documentary texts invite audiences to engage those images in the context of a rhetorical purpose—sometimes as examples illustrating and advancing a direct argument, sometimes as a narrative (the story is told), sometimes as dramatization (generating conflict, drama, interest), but nearly always with a pragmatic rationale for generating audience interest, appeal, and effect" (p. 10).

Schoen continues by asserting that the goal of a critical, rhetorical focus used to examine documentaries should not be on the outer validity of images used within each scene. This includes validating the scientific evidence behind the scientific fact. Instead, the focus should be on how images are presented as evidence in support of particular "truths" and how they function in their persuasive application. Central to Schoen's examination is Burke's dramatistic method which employs drama as the central metaphor in his criticism. When he claims that all of discourse can be examined and thought of as drama, he means this quite literally, as in we literally dramatize the

messages we communicate. As Schoen (2012) notes, "by reading texts and social events as drama, we employ a basic and common interpretive frame that reveals the human and basically rhetorical qualities of communication" (p. 41). Certainly there are many ways of approaching this task, but I would agree with Schoen and others that rhetoric is especially adapt for appropriate and productive examinations of documentary films. Where my intentions diverge, however, is where Burke is central to Schoen's examination in understanding the dramatization of documentary films, my focus on representations of science needs to account for a deeper history of scientific thinking that reveal a vocabulary for understanding science's epistemological and ontological appeals.

As noted, the most renowned and widely discussed documentary on climate change is AIT. As a persuasive text, many scholars have analyzed this film for its contribution and effectiveness to influence perceptions of anthropogenic climate change (Bergin, 2009; Eubank, 2015; Johnson, 2009; Olson, 2007; Rosteck & Frentz, 2009; Schoen, 2012). Each examination provides certain themes that include but are not limited to argumentation, social advocacy, rhetorical leadership, ethos, mortification, and apocalypticism. While their theoretical and methodological approaches differ, each emphasizes the issue of climate change, to some degree, as rhetorical. Climate change as a "rhetorical problem" (Campbell, 1982) implies that how problems and solutions are articulated, and the descriptive language for motivating people, are important parts of the overall "issue." Considering the rhetorical scholarship produced on AIT, many scholars have used this method of dramatism to make sense of how the film transforms the "character of situations" through the similar employment of the drama metaphor (Benson, 1980; Benson & Anderson, 2002; Bergin 2009; Eubank 2015; Gronbeck, 1977; Johnson 2009; Olson 2007; Rosteck & Frentz 2009). While this is often apparent in the stories told by Gore — which I will elaborate on in the following chapters—I argue that the larger topic, or mere word, "science" often implies a more extensive parentage that will be addressed in Chapter Three.

As Karlyn Campbell (1982) notes, scientists may rightly respond to this rhetorical perspective of science by asserting that "truths must be discovered and tested, through logic and experiment. In fact, they would argue that [we] should pay more attention to how truths are discovered and tested" (p. 3). The rhetorician's goal, however, is concerned with the resources available in language that bring truths to life, rather than discovering unacknowledged and unaccepted scientific truths. Aristotle in the fourth-century B.C.E recognized the differences in certain kinds of truths: certain immutable truths of nature designated as the province of science (*theoria*) and a different sort of wisdom which was required to make decisions about social matters (*phronesis*).[9] Many persuasive climate change messages that are constructed around the "information deficit" model of science communication ignore this distinction and ground climate change advocacy strategies on a "materialist naturalist" perspective; which is to say that merely understanding more about the physical procedures and the knowledge produced through the physical sciences will provide a complete account of the world. The term "materialist naturalist" is used to describe a tradition of thinking about science that operates under the belief that the best way to truly know the world is by studying its materiality.[10]

This perspective is driven by the assumption that the world is intelligible. That is, as Thomas Nagel (2012) notes, "the world in which we find ourselves, and about which experience gives us some information, can be not only described but understood" (p. 16). It is important to note that the "materialist naturalist" perspective, especially in the natural sciences, "has led to

[9] See Aristotle (translated by W. Rhy Roberts) (1954) citation, as well as Campbell, K.K. (1982) citation where she discusses rhetoric and what she describes as a rhetorical perspective. In the first chapter, she includes a brief history of the study of rhetoric and includes the first major treatise on rhetoric that still exists, which was written by Aristotle in the fourth-century B.C.E.

[10] See Nagel's (2012) citation. In his account, Nagel's skepticism of the modern materialist approach is grounded not in religious convictions, but in the incomplete account it provides to our understanding of the mind and cosmos, but also our understandings of meaning, values, and history. I use the term to emphasizes this belief of incompleteness and suggest that, similar but not equal to Nagel, we consider perspectives other than the materialist naturalist conception of reality.

extraordinary discoveries, confirmed by prediction and experiment, of a hidden natural order that cannot be observed by human perception alone" (p. 16). However, as a basis for studying the applications and consequences of scientific persuasion, using the assumption of intelligibility – that is, the assumption that we can know the truth of the world solely through these physical procedures – does not account for the rhetorical perspective used to describe the implications of climate change and the scientific facts supporting it. While the reality of climate change consequences are material by nature (i.e. floods, storms, and diseases), the manner in which we discuss such conditions function under an alternative set of principles referred to here as the rhetorical.[11]

I admit that the term "materialist naturalist" is rather rough. Just as Nagel notes, "the conflict between scientific naturalism [and materialist naturalism] and various forms of antireductionism have become commonplace in recent philosophy" (p. 13) and science studies. For the purposes of this thesis project, the ongoing conflict between these two philosophical views is irrelevant. However, since scientific facts alone are not always enough to persuade, the "materialist naturalist" perspective is used to describe my own skepticism of the modern materialist approach coupled with the "information deficit" model of scientific persuasion. As much as it goes against my own instinct and biases, if the material existence of something is not enough for people to say, "okay, I can now see, hear, touch, taste, and smell what I did not before and therefore I now believe it to exist," then why would we think that the linguistic representation of the material "matter of fact" (Latour, 2004b) would be any more effective? Therefore, addressing the "materialist naturalist" perspective of science is intended to present a way of understanding the cultural presumptions and motivational choices of particular strategies of scientific persuasion.

[11] I'd like to acknowledge the rising interest in new-materialist and post-human rhetorical work. While these areas provide insightful perspectives, this project in particular is not addressing rhetoric's materiality and instead emphasizes the material to merely highlight a major perspective in traditional and contemporary scientific thinking.

Additionally, I do not put the term "scientific" in front of "persuasion" to claim a new phenomenon. Instead, I use the phrase "scientific persuasion" to emphasize the specific persuasive tensions that climate change discourse is in, the "materialist naturalist" tradition of understanding science, and the relationships between climate change messages and the audiences they are directed at.

Therefore, in this thesis project I revisit one of the most influential persuasive climate change texts, the documentary AIT, to understand how the film constructs a "rhetoric of facts" and an ethos of science, as culturally embedded and as audience-variable. AIT is an important rhetorical text and historical moment in the evolution of the general public's awareness of and belief in the truth of anthropogenic climate change. Further, it represents a rhetorically significant document in initiating public action and policy in response to these newly revealed or apprehended "facts." In the section that concludes this chapter, I will provide a detailed description of this project's following chapters and what the reader can expect to learn from them.

Project Overview

In this thesis project, I will conduct a rhetorical analysis of AIT. When examining the persuasive nature of the film, I aim to understand the defining characteristics that make the film distinctive as a way of addressing questions as to why this film stands out in the history of climate change advocacy. An effective way of doing so is through critical approaches that are adapted to the discourse to be evaluated. Descriptive analysis, according to Campbell (1972), is a productive way of understanding these elements. She notes:

> "At the completion of [the descriptive analysis] stage, the critic will be familiar with the nuances of the discourse and will be aware of the rhetorician's selections of language, structure, arguments, and evidence. He will have excellent grounds for determining the rhetorician's purpose and the responses that rhetorician seeks from his audience. The critic will also have extracted information to determine the role the speaker or writer has chosen to play, the ways he perceives and selects his audience, and his choice of persuasive strategies" (p. 14).

Campbell continues by asserting that this process is entirely intrinsic, meaning the critic makes judgments solely based on the content used within the text itself. In Chapter Two of this thesis project, I use descriptive analysis to understand how AIT functions based on its inner rhetorical workings. By examining the rhetorical elements of tone, purpose, structure, supporting material, and audience, I develop a necessary understanding of how the film works. These rhetorical elements are the means of understanding each role played within the film and establish a foundation for understanding and supporting all of the claims I make about AIT in this project. Additionally, these elements will illustrate an understanding of how AIT was crafted for and provoked responses from particular audiences by the persona crafted through the discourse. This will also illustrate how climate change is constituted as a "rhetorical problem" and what that communicates to the viewer.

In Chapter Three, I will focus on three narrative or dramatic storylines in the film that I believe are intended to work together to get the audience to experience the authority of the science of anthropogenic climate change and to put the audience into a different relationship to these facts and their meanings. These three narrative themes make use of the documentary medium along with Gore's persona as a social leader, persuader, and in some ways model citizen to create virtual experiences of climate change, which implicate conceptions of science as a way of knowing and acting on matters of scientific fact. These narrative themes in AIT, I shall show, parallel three different themes that scholars have identified in the general study of the rhetoric of science: science as a story of perpetual discovery, science as reference, and science as an agent of moral prosperity. As I engage with a number of scholars all interested in the rhetorical dimensions of scientific discourse, it is important to acknowledge how each invites us to apprehend science differently. Each narrative of science and the scholarly theme used to situate it as a way of cognizing scientific authority all ask differing epistemological and ontological questions about how science authorizes representations and relates them back to the material. I briefly summarize these three rhetorical

themes concerning scientific authority, and then demonstrate how the film utilizes those narrative themes in the way it stories the science supporting climate change for its audience.

In Chapter Four, I afford my thoughts regarding what AIT was and was not able to do as a persuasive document and how it's success and failure are indicative of the larger genre of public scientific persuasion. In doing so, I demonstrate how AIT aligns more with the epidictic genre of rhetoric, suggesting that its strengths and weaknesses are a result of the value oriented dialectic it advances. The specific values expressed by Gore are developed throughout the entirety of this thesis project.

Chapter Two:

AIT's "Rhetorical Problem"

There is often tension obstructing successful scientific persuasion. The topic of climate change itself and the ways rhetors speak about it to certain audiences demonstrate this tension through social and cultural obstacles. These obstacles, whether they are the cost and complexity of an issue, the culture and tradition of audiences, or the stature of a speaker, create the conditions for "rhetorical problems" (Campbell, 1982). The specific case of climate change seems to have become the poster child for certain rhetorical obstacles facing scientific persuasion. The dramatic case of AIT exemplifies these obstacles in a manner that illuminates the larger issue of scientific authority and provides an understanding of how and why certain rhetorical strategies work or fail. The descriptive analysis put forth in this chapter demonstrates how Gore's rhetorical practice speaks to and ignores certain social and cultural obstacles, and how this tension is ever-present in climate change discourse and scientific communication generally.

Anthropogenic climate change is a topic that is both complex and costly. The cost of inaction is catastrophic and even apocalyptic. Gore's emphasis on urgency and the dangers threating human well-being justify certain extreme assertions proposed throughout the film. For example, claiming that the Earth itself will become uninhabitable due to rising climate temperatures commands a response from the audience due to its extreme and even biblical appeal. The cost of not responding, of not reducing greenhouse gas emissions is too dangerous to ignore, which gives insights regarding how Gore influences audience inertia. While the cost of inaction is important to articulate here as it is a major part of Gore's rhetoric, the cost I speak more directly to in this

chapter is the cost of action itself. Solving this crisis will take time and money—specifically tax-payer money. The obvious choice here between a prosperous life and the allocation of time and resources may seem simple, but never is. Gore must justify the cost of change; what people, especially American citizens must give up to secure a safe future for themselves and generations to come. For many Americans, this cost sounds a lot like government intervention and increased federal taxes (e.g. a carbon tax). These factors represent the obstacles Gore must speak to and overcome. The climate change debate is not just about life and death, but about the cost of life and the cost of change. In this regard, Gore must search for social truths, that is, "truths that influence social and political decisions" (Campbell, 1982, p. 4) that compel his audience to accept the cost of this "truth" and respond according. This, in turn, assumes that in order for Gore to explain his position, justify his views, and present his reasoning, he must do so in a manner that makes sense to the audience and appeals to certain cultural sensibilities that persuade them to accept the problem as it is communicated.

Additionally, the details of climate science supporting the validity and reality of anthropogenic climate change are not obvious to non-scientists. They are complex and at times even counter intuitive. AIT's non-scientific audience is not conditioned or pre-exposed to actual scientific practices and the jargon of scientific facts as articulated by scientists within their scholarly discourse communities. This, therefore, requires Gore to simplify the issue as to make it understandable and seem solvable. The topic of climate change demonstrates this rhetorical obstacle perfectly as it applies to many other public scientific controversies (e.g. abortion, disaster management, and agriculture). Therefore, examining the rhetorical strategies employed in AIT, which are used to overcome the obstacle of complexity, demonstrate how Gore transforms the complex into the digestible through analogies, comparisons, figures of speech, and so on.

Lastly, the tension between Gore and his audience present obstacles that shape how certain messages are communicated. Understanding this requires knowledge of the traditions and cultural assumptions of the film's audience and the ethos of Gore. In Chapter One I discussed Gore's political history and how his political ethos was developed through personal and professional experiences. In this chapter, I demonstrate how Gore merges that history with the traditions and cultural symbols of his audience as a way of creating adherence on multiple levels. Understanding the discrepancies existing between a speaker and audience, and the obstacles that enforce such discrepancies requires an understanding of the context of a given "rhetorical situation." These factors are the crux of the "rhetorical problem" constructed throughout AIT. According to Karlyn Kohrs Campbell (1982), "a [rhetorical] problem is the gap that exists between what you think ought to be and what is; it is the discrepancy between the ideal and the real, between goals and achievements" (p. 5). From this definition, "rhetorical problems" are not universal, but vary in meaning depending on one's descriptive language, held values, and desired goals. Roderick Hart (1990) communicates a similar observation by asserting that rhetor's typically speak because they feel something is wrong. This wrong, or implied rhetorical problem, is the implicit reason to communicate revealing the justifications for varying "speech-acts." By this, Campbell and Hart mean that rhetor's speak to address discrepancy, some manner of social incongruity, because they are troubled by it. They speak with intent to change human affairs. The obstacles a speaker faces, therefore, depend on the specific context and relationships mentioned above.

This chapter, therefore, intends to demonstrate the rhetorical obstacles that comprise the pressing rhetorical problem by developing a system of criticism forged out of the film itself. According to Campbell (1982), a successful rhetorical criticism is a product of a multi-stage process. First, the critic selects a text with characteristics unique and impactful to a particular discourse or multiple discourses. As noted, AIT meets this standard and remains significant within the

jurisdiction of climate change and environmental discourses. Second, the critic analyzes the linguistic, grammatical, and rhetorical elements of the text, also known as the inner rhetorical workings of a discourse, and its corresponding relation to it's milieu. Third, the critic creates a system of criticism in order to understand the rhetorical quality and effectiveness of the text in order to evaluate it (Campbell, 1972, p. 13). These three stages are not distinguishable on the mere surface of the text to be evaluated, but instead need to be cultivated by the rhetorical critic. Chapter One established the first stage of this process, along with situating the theoretical and methodological scope of the larger thesis project. In this chapter, I take on the second stage of criticism through descriptive analysis and aim to describe the unique and defining characteristics of AIT. This will provide insight about how the triad Campbell establishes in her description of what constitutes "rhetorical problems" functions as central elements to the film's rhetorical practice: obstacles imposed by the speaker, the stigma of the subject, and the traditions and culture of the audience.

Descriptive Analysis

The descriptive analysis employed in this chapter is predicated on a strong commitment to organic and situational criticism. Campbell (1972) draws contrast between this approach and treatments of prescriptive criticism, which employs a universal formulary to multiple discourses (p. 13). For example, using any of the traditional percepts or classical cannons to constitute a model for effective rhetorical practice is a common prescriptive rhetorical strategy (Campbell, 1972; Hart, 1990). While this may work for some rhetorical critics, others may find it unproductive for the purposes of questioning the relationships between a text and its milieu. As a result, I have chosen the organic approach over the prescriptive strategy because I feel that many of the traditional values perpetuated by the classical cannons such as reason, law, and order (Aristotle, 1954) are readily being challenged today for a multiplicity of reasons. As Campbell (1972) notes, many of these

challenges "argue that power holders use such values to rationalize injustice and oppression" (p. 14). A prominent example would be particular racialized economic ideologies that cause high degrees of inequality and discrimination towards people of color (Hall et al, 1978; Northrup, 1994; Williams, 1944). Robert L. Scott and Donald K. Smith (1969) afford a similar perspective by suggesting that contemporary rhetorical critics should examine and understand such rhetorics in a manner that does not reinforce such censured stratagems, but rather attempts to understand them from within a particular discourse. The same categories may very well be used in both brands of criticism. However, the organic approach is better suited to unpack the dominant scientific perspectives that I am dealing with without buying into their assumptions (e.g. the materialist naturalist assumption of scientific knowledge).

Additionally, the topic of science itself is rich with similar brands of rhetoric that are often motivated by values and ideologies that directly harm certain underrepresented publics. In this vein, consider Celeste Condit's (2004a; 2004b; 2010) work on genetics and how the construction of scientific facts can be heavily influenced by racialized ideologies. Other concerns regarding science are most notable in Thomas Kuhn's (1962) well-known publication when he discusses the power dynamics within and across particular scientific paradigms (p. 43). Taking an organic approach to the rhetorical analysis of AIT does not guarantee a flawless, unproblematic critique. However, by taking the time to understand the specifics of Gore's rhetorical practice, I intend to develop an understanding of his inner rhetorical workings in a way that acknowledges certain values and perspectives without adopting and perpetuating them. Before developing a system of critique for the particular treatment of scientific persuasion in AIT, I need to cultivate an organic understanding of the rhetorical acts as patterns of argument that arise out of particular conditions.

Therefore, my description of this process will unfold in a manner that outlines each of the rhetorical elements—purpose, audience, persona, tone, structure, and strategy—in terms of the

specific sub-factors Campbell (1972) discusses in her outline of descriptive analysis. Through examining these elements, I will consider the potential and intention of messages that influence action and solicit particular ways of understanding the film's pressing "rhetorical problem."

This stage is also concerned with how scenes are created to function in particular ways that support certain versions of reality—versions of climate change forged through personal experiences that remain open to mutable circumstances, fluid boundaries, and changing perspectives. By "scene" I mean the context of a rhetorical act, or series of actions presented in the film that provide space for rhetorical action, and thus persuasion, to occur. Schoen (2012) emphasizes "scene" as the quintessential component that allows documentaries to do the work that documentaries do, which is to "set the "real world" as their context" (p. 48). In other words, the "scene" is the framework of each message created through the combination of images, sounds, transitions, orations, and guiding perspectives that "cloth truth in living flesh" (Campbell, 1982, p. 3). Therefore, the first question one should ask when examining each scene is: what act is being performed here? However, this question implies several more: Who is the speaker? What does the speaker want the audience to take from this scene? How do the images, music, and orations set the stage for what is to come? Hart (1990) admits that these are simple questions, but answers to them are generally complex. The aim of these questions is to reduce a "speech-act" to its basic rhetorical features (p. 44). During this process, Campbell (1982) notes, the critic should not evaluate, but instead describe each scene by making descriptive judgments as to how its discourse functions. Doing so is important not to develop answers but to formulate and raise new questions that may be overlooked by critics solely interested in the content of scientific messages. Instead, I shall pay close attention to all of the ways "facts" are awoken by other rhetorical means to support the films persuasive ends.

These new questions that I seek to uncover and articulate have the potential to reveal the essence and structure of rhetorical acts that will help me develop a better understanding of what AIT's messages "do" and how they do it. As I focus on the considerations of Campbell and Hart, I shall also be attentive to how scenes unfold in the much larger plot ark of the film. Each piece of this analysis will lay the foundation for the third stage of criticism that will take place in Chapter Three.

Purpose

The thesis of a discourse, the argumentative conclusions, and the justifications and reasons that lead to them are known as a text's rhetorical purpose. According to Campbell (1972), an analysis of a text's purpose should include the major arguments and should diagram their relationship to other rhetorical elements (p. 15). In many films and speeches, a clear thesis is often articulated from the very beginning, just as it is taught in the majority of introductory public speaking courses. In AIT, there seems to be an apparent purpose—to persuade the audience about the planetary threat of anthropogenic climate change through the scientific evidence supporting its reality—and an implicit purpose—to provide emotional context that limits the aspects of the problem to be treated as to make it seem solvable. These purposes are not at odds with each other; in fact, some may argue that they are at times one in the same. Each narrows the scope of the issue through a manner that the audience can easily digest and relate to by constructing scenes that provide a clear justification for the films main objective.

The rhetorical purpose is also closely allied to the tone of the discourse (Campbell, 1972, p. 15). While the apparent purpose is explicitly stated frequently throughout the film, the implicit purpose is often emphasized through the manner in which Gore describes, justifies, and employs all of the visual, auditory, and discursive elements at his disposal. These fundamental components are the building blocks of each scene and function to expand and shape viewer experiences.

According to Campbell (1982), "to communicate, to act rhetorically, means that you initiate an act that someone else can translate into virtual experiences. When something is virtual, it does not exist in fact; it is as if it existed" (p. 8). What Campbell is describing are experiences that are shaped by one's response to particular symbols. They are responses to words, sounds, and images forged to create a mental picture in the minds of an audience. In this regard, a rhetor can alter the perception of a concept by contributing to associated experiences which improve the capacity to understand (p. 9). Since the film's explicit rhetorical purpose is to persuade audiences to understand and respond, and since facts alone are not always enough to induce this goal, then it is up to the rhetor's ability to alter perceptions of the audience through the virtual experiences they create and employ. Thus, AIT's implicit purpose is revealed through the function of scenes that paint captivating moments in time that inspire and move the audience, deepening their level of investment and the degree of their commitment. These virtual experiences aim to achieve the films persuasive objective by bringing life and emotion to such a dangerous environmental problem.

For example, through the documentary format Gore is able to present depictions of scientists in the field, engaging in the daily tasks of their profession. These scenes afford the visualization of facts that emphasize the reality of climate change. The apparent purpose is demonstrated through the visualization of "scientists doing good science" (Bazerman, 1988), which function as an epistemological breakdown of scientific practice. This provides the intricacies of facts by presenting the very ways scientists come to understand their subjects of study. In a sense, we can think of these virtual experiences as the experiences of scientists themselves. The reality of climate change, therefore, is presented to the audience through the context of the documentary format (i.e. if the practices of scientists are real and experienced by the audience, then so is the fact and the very problem itself). Such demonstrations are important indications revealing the rhetor's intent and thus rhetorical resolve.

The implicit purpose is emphasized when Gore describes climate change as an individual, solvable problem. This reduces the immense complexities of the problem (the political, social, and scientific) and wraps it up in an easily comprehendible manner, evading the feeling of helplessness that often accompanies problems of this magnitude. For example, large scale carbon polluters such as large corporations are constantly depicted emitting large quantities of air pollutants into the atmosphere. In an attempt to provide clear visualizations of human behavior implicated in the development of climate change, Gore creates a problem that narrows the scope of necessary action. Since saving the Earth from rising atmospheric carbon dioxide levels may seem like an out of reach task, the smaller problem of corporate pollution and political corruption, while still vast, seem as more manageable courses of action.

The manner in which each of these scenes exemplifies the film's rhetorical purpose, "may include the traditional goals of acceptance and understanding or such "radical" goals as shame, confrontation, polarization, and alienation" (p. 15). For example, an evocation of ignorance is a major factor within Gore's descriptions of dealing with scientific misunderstanding. This emerges in one of Gore's personal anecdotes about his sixth-grade teacher who taught geography by pulling a world map over the classroom blackboard. One of Gore's classmates, a curious, wide-eyed sixth grader, pointed to the east coast of South America and to the west coast of Africa and asked if the two continents ever fit together. The teacher's response, Gore claimed, was dismissive as she brushed off the preposterous observation. After a moment of levity, which was induced through mocking scientific ignorance and misconception, Gore suggested that his teacher wasn't wrong per se, but was merely reflecting the scientific establishment of the time. The audience members quietly snicker not because they are all well versed in the implications of continental drift as deemed true by geologists. Instead, the development of events, which reestablish an understanding of the films rhetorical purpose, slowly create a context to which the appearance of scientific misconception, as

demonstrated by the teacher, seem that much more absurd. The audience quickly becomes conditioned to notice faulty, notably dangerous scientific misconceptions as deviant characters within a story. From this observation, we begin to witness Gore's rhetoric predicated on the expense of the "climate skeptic." This seems counterproductive considering these are the very people Gore intends to persuade.

This theme is repeated in Gore's multiple stories of his political past. His descriptions frame politicians with differing ideologies as oppositional characters in his political and moral parable. For example, when Gore first began initiating science rounds tables in the congress to address the predictions of leading scientist like Revelle and Keeling, Republican politicians met Gore with responses similar to that of his sixth grade teacher. In Gore's description of these moments, his tone repeated the same sarcastic, disdainful caricatures as before. The audience's response was also similar; laugher and seemingly confrontational nonverbal gestures made their attitudes toward the anecdote apparent. Gore's rhetorical practice in these moments seemed more interested in mocking the opposition and flattering his own ideological base.

Through these extremely similar examples, we can see how each scene accomplishes the film's explicit rhetorical purpose through descriptions of Gore's sarcastic tone and the aroused audience response: sometimes condescending laughter and at other times confrontation and shame. Since the films overall goal is to persuade the audience about how to feel, think, and act on their previous and newfound conceptions of climate change, these scenes function in a manner that instill emotional context that limits the aspects of the overall problem (ignorance and misconception of science fact) to be treated. In other words, these anecdotes functioned appropriately to achieve the films purpose not by providing accurate scientific evidence, but instead by constructing a human face (certain politicians) and particular ideologies to oppose in order to make the fight seem winnable. While these scenes alone may not provide legitimate scientific

support, they surely provoke a response toward the scientifically illiterate which are otherwise framed as a large contributor to the film's "rhetorical problem." They become the enemy in Gore's political parable and remain that way throughout the entirety of the film.

Persona

Gore creates multiple identities throughout the film's discourse. Each identity, or persona, function to reveal the attitudes, beliefs, and perspectives that influence the positioning of certain rhetorical elements. Since AIT is just as much about Gore as it is about climate change, the ways in which his persona is crafted reveal the context and positionality he takes within each scene. In other words, to understand how the film constructs its rhetorical problem we must understand how Gore frames his experiences and his role in sharing those experiences. Is he an educator informing his students of scientific evidence? Is he a preacher sharing his testimony with his congregation? Or, is he a politician discussing science policy with his fellow constituency? Each persona shapes the emotional context of messages and changes the position of the audience. Are they curious students, sinful Christians, or politically engaged citizens?

As Schoen (2012) notes, "preachers, politicians, scientists, artists, educators, and virtually everyone else create rhetorical messages that claim to present the truth and attempt to get audiences to experience their claims as true" (p. 7). In this, Gore's storytelling is no different. His multiple personas are created through the ways in which supporting materials are contextualized in anecdotes of his past. Each scene creates a depiction of a particular persona through lived experiences which correspond the "reality" of scientific facts to social and embodied existence. This is what Schoen refers to when he identifies "persistent rhetorics of evidence" that position certain rhetorical situations (p. 8). In other words, it is the persistent frame for making sense of the cultural presumptions and motivational choices that constitute the doings of effective symbol

systems. In this regard, the symbols of interest here are housed within the three personas Gore adopts.

First, lets address Gore the Politician. Early in the film, Gore is depicted parading in front of cheering crowds, signing autographs, shaking hands, and taking pictures with seemingly excited supporters. Smiling faces greet him with applauds as he introduces himself to the crowd as the once "next President of the United States"—providing a moment of levity to unhinge lingering tensions. This scene frames Gore as worthy of praise only to be collapsed into stories describing his shortcomings. Images of his failed 1988 presidential campaign lead the viewer into the sight of Gore peering out of a car window, while stating:

> "I've been trying to tell this story for a long time and I feel that I've failed to get the message across... There are good people who are in politics in both parties who hold this at arms-length because if they acknowledge it and recognize it then the moral imperative to make big changes is inescapable" (Guggenheim, 2006).

His voice is full of pain and remorse, which indicates to the viewer that his failure is in some way entangled within the rhetorical purpose of the film. This suggests that AIT will function to transform some perceived failure into a pattern of profit and success. In this moment Gore imbues the imagery of an experienced politician whom has fought, even through failure, to inform his constituency about this global threat. This political motif not only builds credibility, but also revitalizes and reconstitutes Gore's identity from his former failed political persona to a political veteran of environmental policy. This political persona reappears later in the film when Gore describes what he understands as a "failure of democracy." He confesses:

> "I had such faith in our democratic system; our self-government. I actually thought and believed that the story would be compelling enough to cause a real seat change in the way the congress reached to that issue. I thought they would be startled too, and they weren't… The struggles; the victories that aren't really victories; the defeats that aren't really defeats. They can serve to magnify the significant of some trivial step forward, exaggerate seemly importance of some massive set back" (Guggenheim, 2006).

Gore opens this scene describing feelings of defeat through the setbacks he encountered on the congress floor. As he articulates this process of overcoming adversity—overcoming moments of pain and struggle—he frames these setbacks as significant moments that magnified the overall importance of this climate issue and why he has fought so hard against proponents of the fossil fuel industry. Black and white images of the congress floor depict Gore testifying to a crowd of stern white faces—all seemingly apathetic toward his efforts. His tone is subdued as he describes political hardships, which provide obstacles in this political drama that Gore must face and overcome; moments that redefine what is important in the ark of his story. These scenes are crucial to the dramatization of climate change by building adherence between the leading character (Gore), the topic (climate change), and the audience. In fact, we can even think of these scenes as moments of character development that provide a background story that reinforces the audience's investment in the plot.

During the stories describing Gore's political defeats and hardships, the combination of commentary and visual representations of these past experiences re-articulate what Gore terms as his new "life's mission." These experiences also reinforce the film's rhetorical purpose through the documentary format. Similar experiences repeat throughout the film because they provide reference to Gore's multiple identities, as well as provide the emotional context that forges essential virtual experiences that alter audience perceptions of this climate crisis and build adherence to Gore and his social and political values. Therefore, Gore's political experiences frame climate change as a "rhetorical problem" by the "reality" of this political opposition, which is also described as "denial of the Right." Political opponents become antagonists in this drama of climate change to which Gore opposes as the political hero we desperately require.

Gore's second persona can be characterized as Gore the Educator and begins with descriptions and imagery of his experiences as a college student at Harvard. He first describes the

experiences studying under his mentor Rodger Revelle. In his description, Gore states, "[Revelle] saw where the story was going after the first few chapters; after the first few years of data, he intuited what it meant for what was yet to come" (Guggenheim, 2006). Using a somber tone of voice Gore communicates great admiration for Revelle and goes on to describe those first few years in college as a time when he encountered intellectual ferment and was faced with ideas he would have never encountered elsewhere. He describes a time of growth; a time of rebirth where his eyes were opened to a new understanding, which was provided to him by the research and pedagogy of Revelle. We can think of these experiences as a means to alter the perceptions of the viewer that change their position from political agents to curious students. Scenes with this persona provide information about climate change—its causes and magnitude—that give viewers the virtual experience to recognize it as a real global threat through anecdotes of learning the scientific evidence supporting the reality of this issue. These scenes provided context required to alter perceptions of climate change by understanding the significant impact each experience had on Gore's personal intellectual evolution.

Additionally, this persona strengthens the relationship that solidifies adherence to a particular understanding of what scientific evidence is and the legitimacy it possesses to know the truth of the matter. In other words, in order to understand and adhere to the educator persona, one must adhere to the corresponding role of "student" whom presupposes the legitimacy of Gore's positions on scientific facts. The audience, therefore, trusts Gore's word only insofar as they accept the relationship imposed on them by this persona.

Gore's third persona is created by invoking the moral imperative to act, framing Gore as Preacher, or religious orator, whom speaks on behalf of the people's good will. In one of the final scenes of the film, Gore states the following:

> "You remember that home movie of the Earth spinning in space. One of those spacecraft continuing on out into the universe, when it got 4 billion miles out in space, Carl Sagan said,

> "Let's take another picture of the Earth." See that pale blue dot. That's us. Everything that has ever happened in all of human history has happened on that pixel. All the triumphs and all the tragedies, all the wars, all the famines, all the major advances: it's our only home. And that is what is at stake: our ability to live on planet Earth, to have a future as a civilization" (Guggenheim, 2006).

This scene functions to combat all of the divisiveness, the collisions, and the controversy with a message of unification. Gore claims that we are unified not by ideology, socio-economic status, or even by species. The message Gore is crafting unifies the audience based on a moral understanding of our place in the cosmos. In his description, Gore implies that we are unified because of our location, interdependence, and seemingly uniqueness in the cosmos. Thus, Gore becomes an inspirational preacher as he addresses his congregation of fellow believers. Using the moral imperative to frame the rhetorical problem provides a virtual experience that reframes how the audience is supposed to respond. The issue is no longer political or scientific. Instead, Gore's testimony frames climate change as a moral problem that requires the good will of the congregation to act for the sake of the greater good. To include additional context, Gore uses the iconic pale blue dot photograph which allows him to echo the sentiments of the late Carl Sagan. This photograph, as it is used here, is a declaration of our moral imperative, meaning that we as fellow occupants of Earth must act for the sake of future generations. Negligence on our part is seen as morally volatile and could result in apocalypticism. For Gore the preacher, the audience presupposes any conflicting testimonies as declarations of sin and must respond with blame and shame. These religious appeals manifest some strong rhetorical effects and will be addressed in greater detail in the third stage of criticism.

Each persona (the politician; the educator; the preacher) calls forth a different response from the audience. The politician requires political engagement; the educator requires further understanding of the scientific evidence; the preacher requires moral transformation. Through the depictions provided in each scene, the viewer understands these virtual experiences as a way of

feeling and understanding climate change as a rhetorical problem from a series of altered perspectives. Each improves the audience's capacity to understand not because of truth or scientific fact, but rather because of the differing personas. Through each scene, the viewer understands their relationship to the speaker and scientific material, and understand how they are supposed to respond. In this regard, we can think of persona as central to AIT's rhetorical strategy; as a means of contextualizing the issue within constantly transforming personas.

Audience

Like many other persuasive texts, AIT constructs its discourse for particular audiences. While this film—like many other attempts at mass scientific persuasion—does aim to appeal to the largest number of individuals and groups possible, claiming that a text addresses the general public does not provide indications as to how this film "selects" audiences through discourse. Throughout the film, Gore does provide a variety of invitations to multiple audiences, or publics, by appealing to certain ideals while alienating others. For example, Gore often acknowledges that being what he calls "pro-environmental policy" often characterizes certain groups as liberal or left-leaning. Not only does he state this explicitly, he also implies this through his manner of describing those members of congress whom operated as Gore's political opposition for so many years. This is what Campbell (1972) means when she observes how audiences are selected through statements that "indicate [that] the rhetorician is aware of more than one audience" (p. 18). Across multiple scenes, Gore describes his political ideals and allegiances as perspectives that are in clear opposition to the values of Republican politicians. In doing so, he clearly attempts to draw support from others whom have similar political ideals and affiliations—mainly those that identify as liberal, Democrat, and anyone else who may feel in opposition to the political-right.

In other moments, Gore often attempts to blur his political biases and motivations by emphasizing that the issue of climate change is non-political. He repeats the notion multiple times

to target audiences that may otherwise disagree with him politically. One of the strategies of shifting viewer perceptions of climate change to a conception outside of the political frame functions by describing the horrific tragedies that have taken place all over the world in the name of rising atmospheric carbon dioxide levels. For example, Gore describes and provides thermal satellite images of the 2003 heatwave that occurred in Europe. The estimated death rate of this catastrophe, according to Gore, was as high as 35,000 people. Specifically, 15,000 deaths in France, 1,400 in the Netherlands, 13,000 in Portugal, 20,000 in Italy, 900 in the UK, and 100 in Spain. This breakdown—while not mathematically adding up—provides a global perspective of climate change that draws audience attention to the urgency to act over Gore's political ideology and nationality. In these moments, Gore uses this pending global threat and multiple examples of its catastrophic impact on human populations all over the world to target audiences who may feel compelled by these descriptions.

Overall, the film targets audiences through political appeals, environmental appeals, and by appealing to a moral conviction to make the world a safer place. While each scene may call upon the audience differently, the film's rhetorical purpose involves a desired audience response that induces belief and acceptance of climate change as a reality, reevaluates audience understanding of the issues causality, and develops possible action steps that could lead toward future environmental changes. The responses of the audience, at least for a moment, demonstrate if Gore achieved his desired goal or not. The laughter or confrontational gestures are merely two indications that certain audience members successfully connected with a scene. This provided insight as to how individuals or groups may engage in future climate change representations are helpful to future rhetors interested in appealing to these audiences. Therefore, the function of these scenes provide insight as to the rhetorical purpose of the entire film: to frame the issue of climate change in a manner that includes belief in the films thesis, shapes audience attitudes toward the issue, and cultivates an

understanding as to the desired aim of each scene. Post understanding the films rhetorical purpose and the audiences "selected" in the discourse, our following questions are directed at how this goal is further achieved.

Tone

"Tone," as Campbell reminds us, refers to the language elements that reflect the rhetor's attitude towards the subject material and the intended audience. These are considered stylistic qualities and may be described in various ways, such as condescending, distant, personal, direct, and so on. For example, the tone of "climate change denier," which is both explicitly stated and implied, is generally dysphemistic, usually condescending, and is often non-constitutive. The tone of this phrase usually reveals more about the one using it than about the one to which the label is addressed. This shares a resemblance to the previously mentioned anecdotes used throughout AIT. The tone that was used in sharing the experience of the ignorant school teacher highlighted these very elements, as did Gore's remarks about members of the political-right whom opposed him time and time again on the Senate floor. This comes at not surprise since the tone of these utterances is closely tied to the film's implicit purpose, which is why I frequently mention the tone of AIT's discourse to explain, at least in some degree, the presentation of each scene.

It is important to note that the tone of a text can mutate rapidly over space and time. Addressing the tone of a single temporal and spatial segment of a text may differ, and even contradict, the tone of the disposition whole. The tone used by Gore at times shifts rapidly to a tone that often seems contradictory to the larger message of the film. For example, the flashbacks throughout AIT often create an innocent, naïve relationship between Gore's past social truths and the current scientific evidence used to support the reality of climate change. This rhetorical impulse changes significantly when Gore speaks about conservative climate change skeptics in a disdainful, satirical manner. Even though I have discussed the former more so than the latter, I would not feel

confident arguing that either one characterizes the film as a whole. Instead, if we look closely at the film's introduction and conclusion, we can see that their tones share a resemblance in the manner they are communicated. Both create an inspirational, positive connotation to climate change advocacy. They instill passion and action rather than apathy or distain. This rhetorical strategy of rapidly changing tones does a number of things: creates a common ground between him and his intended audience, defines the intended relationships between supporting materials and audience, and defines the perception of other viewpoints on the issue.

Supporting Materials

As noted, my central observation has been that the goal of creating common scenes is to forge virtual experiences through descriptions of Gore's embodied experiences. In order to do so, supporting materials must work together in order to create for a more vivid audience experience and function to induce the films overall rhetorical purpose. However, the cooperation of supporting materials does not mean that each functions in the same manner. Rather, each offers a different proof function of discourse. Since a single example has only so much demonstrative value, the need for multiple forms of supporting material is crucial to forge "precipitating moments" (Campbell, 1982, p. 12-3). Focusing on how supporting materials function and are described within the discourse reiterates an earlier point: "that truth cannot walk on its own legs" and even though scientific facts, used solely, are not always enough to persuade, we must wish to understand why and how certain forms of evidence can contribute to the creation of AIT. In this regard, let us continue to examine the role of supporting materials used in the developing plot.

Gore often uses analogies, or comparisons, which function primarily for "the purposes of prediction [as it] connects what exists and is known with what is in the future and is unknown" (Campbell, 1972, p. 17). For example, towards the end of the film Gore makes a comparison between old and new weaponry as a means of describing the potential harm of current technologies

and methods of extracting resources from the Earth that are now contributing to the harmful implications of climate change. He claims that even though scientific and technological revolutions have provided many benefits that have greatly improved human well-being, these advances come with a responsibility; one that human beings have taken for granted. Gore suggests that with every new tool, or piece of technology, comes a drastically new consequence when applied to existing problems. Warfare, he notes, used to be fought with swords and shields, and spears and arrows, but when the atomic bomb was developed in 1945 humans had to think differently about war because of the fact that the new consequences of technological progress were just too great. While the implications of warfare greatly differ from the human activates related to climate change, this comparison exists as a figurative analogy— "a comparison between things unlike in detail but similar in principle" (p. 17). Using this comparison, while drastic, does articulate that even though the details do differ, both technological trajectories could lead towards ultimate human and planetary demise.

Statistics are also repeatedly used to validate frequencies of particular occurrences. Many uses of statistics are coupled with analogies and other examples to strengthen their appeal. As Campbell notes, when "used in conjunction with examples, statistics provide evidence of the typicality of [events] and the size or scope of a problem" (p. 17). For example, Gore displays a graph produced by the Scripps Institution of Oceanography (2005) which presents the predicted and observed ocean temperatures from 1940 to 2003. The graph's y-axis labeled the volume average temperature anomalies (0-100m) (C) and the x-axis labeled the time periods. It provided three areas of measurement: 1) predicted natural variability, 2) expected variation due to human causes, and 3) actual observed temperatures. The depiction of rising ocean temperatures presented a pattern which Gore eloquently correlated to stronger storms. The drastic imagery of the rising observed temperatures line provided a dramatic reading of the measurements that strengthened the larger

story of devastating natural disasters. Without the larger anecdote, the graph or representation of this scientific pattern would fail in its effectiveness to persuade. The rhetorical significance of these statistics created a story of catastrophe that brought the graph to life and ultimately made it effective.

Additionally, expert testimony provides a means for the audience to interpret the scientific evidence supporting the existence of climate change. An example would be how Gore's testimony aligns with the testimony of Rodger Revelle, or by the way Gore echoes the sentiments of the late Carl Sagan. This demonstrates that Gore not only agrees with experts in the field, but, framed differently, that the experts agree with him. Each increases the audience's interpretive capacities and gives Gore, to a degree, the authoritative evidence that strengthens his credibility with the viewer. The perception of expert testimony, infused with the multiple anecdotes of scientific practice, have a strong impact in the manifestation of scientific authority. This aspect of AIT's rhetorical practice with become a central factor in the third stage of criticism.

Each of these examples function within the larger plot of the story. As Campbell notes, "different structural forms require different kinds of supporting materials, and the rhetorician may select a structure to avoid certain evidential requirements" (p. 18). Examining Gore's selection of evidence emphasizes certain questions about the overall perspective of the film, but focusing on all of the elements within the text reveal why and how certain strategies work. In AIT, the scientific evidence and the imagery of Gore's experience are equal in their significance, but are called into beginning through different tones and structures necessary to create effective persuasive messages. Graphs and statistics are used to demonstrate frequency, analogies are used to reframe how viewers should think and feel about an event by provided comparisons, and the expert testimonies of Revelle and Sagan generate authority by drawing in relevant expertise.

Structure

When the structure of a text is identified, this refers to the method of development and form of the discourse presented. A single text can provide a mixture of forms, all of which function to accomplish differing ends. Some of these methods could be "narrative-dramatic, historical-chronological, logical or pragmatic, topical, or taxonomical" (Campbell, 1972, p. 16). For example, the structure of AIT has many overlapping methods of development. This is a result of the many stories being told throughout the film; such as Gore's upbringing as a child to becoming a top political and environmental figure, the development of scientific experiments done from the late 1950's through the early twenty-first century, and his time advocating for environmental policy changes through the presentation of lectures over the years. A narrative-dramatic form is used when Gore shares his personal view of the reality of climate change developed from past experiences. These experiences, in turn, are framed as curial elements of understanding the threat of anthropogenic climate change and his frustration advocating for solutions and awareness.

A historical-chronological form is used when emphasizing multiple developments over time. For example, Gore introduces three different images of the Earth in the beginning of the film. The first was the iconic image known as *Earthrise,* which was taken on Christmas Eve, 1968 during the Apollo eight mission. Earthrise was taken just as the Apollo eight spacecraft was completing its orbit, arising from the dark side of the moon. The second image was taken on December 7, 1972 by the crew of Apollo seventeen, which was the last of the Apollo missions. The Blue Marble, as it was known, was taken while the sun was directly behind the Apollo seventeen spacecraft. Gore contended that the image provided a complete view of the Earth, without it partially hidden in darkness. The third image was taken by the spacecraft named the Galileo, which was an unmanned spacecraft that was sent out to study our neighbors in the solar system. It was launched on October 18, 1989 by the United States and was transported by the

Space Shuttle Atlantis, one of NASA's space shuttle orbiters. As it was leaving Earth's orbit, heading towards Jupiter, NASA turned its cameras around and took a time-lapse photograph of the Earth. By stitching the multiple images together, compressing them into a short twenty-four second clip, NASA revealed one full day's worth of Earth's rotation – demonstrating our existence in the cosmos by depicting our journey through it.

These images, presented in the historical-chronological order they were taken, demonstrate multiple scientific developments that comprise a detailed history of science. Each image describes something we know about the Earth, a frame for thinking about our place on it, and the details of how we uncovered these conceptions. Presented in this order, Gore formulates a cosmic perspective – a frame of sense-making produced through the images of Earth's surface from the vantage point of space. At this point, the viewer has been invited to witness the development of a planetary consciousness through the gems of science to which Gore uses to formulate and support his arguments.

The cause-effect form may be the most notable example of the film's structure. For example, Gore displays pairings of images that demonstrates the degree of glacier melting from several of the world's largest glaciers. Each undergoes a transformation which Gore firmly describes as a story we need to hear; as a story we need to take seriously. Each of the twelve locations presented to the audience function as visualizations of the primary matter of fact; proof of the social and environmental costs attributed to climate change consequences. By developing this scene in this manner, the audience is invited to read and understand these images in a particular way.

This examples, along with the anecdotes that establish needed context, provide a cause-effect argument supporting anthropogenic climate change. Each glacier provides proof of degradation, the context for making sense of that degradation, and an anecdote which resituates

carbon emissions as the catalyst. In these scenes, Gore's means of persuasion is the structure and description of events. Each glacier becomes an agent of the story that the viewer begins to empathize with—as agents who are suffering because of the actions of human beings. Through this rhetorical strategy of describing glaciers as victims, the images of transformation are contextualized through a system of causality to which the cause is implied and all that is needed is proof of the consequences. Other structural forms may also exist in particular spatial and temporal moments of the text, such as effect-cause, problem-solution, and so on. Each structural form has its own specific function and represents a choice made by Gore (and the producers of the film) which presents a perspective that creates a "virtual experience" for the audience by highlighting particular elements over others. The structure of the film changes rapidly in order to appeal to many methods of development, and thus emphasizes a range of materials that simply employing a single structure would not allow.

The Concluding Rhetorical Strategy

A description of the films strategies "determines how the rhetorician shapes [their] material in terms of the audience and [their] purpose" (Campbell, 1972, p. 18). I find that the best way to describe this is by looking back to the previous rhetorical elements to understand how each contributes to the larger purpose of the film. It seems that each scene unfolds in a repeating order: the discovery (scientific fact), the prediction derived from that discovery, and the flashback contextualizing the anxiety associated with it. By the ways in which each rhetorical element provides emotional context needed to understand each scene's function, we can see that climate change is constructed as a rhetorical problem by the ways in which each scene uses purpose, audience, persona, tone, and structure to constantly redefine, restructure, and reconstitute the reality of the issue for audiences to experience. As these examples exhibit, the development of scientific facts are central to AIT's application of scientific persuasion and extends a history of thinking about

science that is still alive today. Beginning with the Earthrise photograph, this pattern of development (fact, prediction, personal anecdote) appeals to audiences whom may not initially take interest in this topic. The dramatized discovery of scientific facts seems to shape the conceptions of science and is strategically effective in arousing interest about this topic.

The descriptions that I have outlined throughout this chapter demonstrate each of the rhetorical elements as designated by Campbell (1972). Each provide a descriptive reading of how AIT functions rhetorically. In understanding a rhetoric of climate change discourse, we can see that the effectiveness of messages relies on the rhetor's ability to create and share vivid scenes for audiences to experiences. While science does imply its own series of assumptions and perspectives (i.e. materialist naturalist), this film in particular demonstrates that in order to effectively persuade about the issue of climate change, rhetor's should consider the tools and practices related to persuasion just as much as they focus on supporting scientific materials. The focus should be on the utterances of truth rather than the objective material naturalist ideals of knowledge and reality.

Chapter Three:

Narratives of Scientific Authority

In Chapter One, I identified the problem of scientific persuasion as one that concerned the rhetorical communication and context of when, how, and under what conditions people come to accept "facts," a subject that science itself has been little equipped to investigate. That is, the "information deficit" model typically employed by scientists trying to communicate their findings to society assumes that if provided with enough exposure to the facts, people will choose rationally and change behavior accordingly. The dramatic case of climate change, both before and after AIT, demonstrates the fallacy of this assumption.

A rhetorical approach to the problem of scientific persuasion would have to ask what an audience's relationship is to the alleged or proposed "facts," and what symbolic and strategic resources exist to put them in a different, more immediate, or motivated relationship to those facts. The "rhetorical problem" includes people's history with certain subjects and the many elements that create resistance to accepting or being motivated by information or scientific "truths" (Campbell, 1982). In the case of the climate change controversy, one of the most surprising forms of resistance has concerned accepting the authority of science itself, an authority taken as unquestioned by scientists themselves, and as unproblematic by many or most people educated in an age dominated by scientific practice and discovery.

As suggested in the introduction, there are two relatively unique features of AIT as a rhetorical document that attempts to persuade its audience to accept the authority of science as

concerns the facts of climate change and how it threatens our global environment and human existence. First, speaking for these 'truths' is Al Gore, a politician. Second, the use of a documentary film to dramatize and demonstrate the discovery and implications of these scientific facts, and to get audiences to experience them more directly. These two elements work together: without a person of the stature of Gore, particular audiences would not typically be exposed to a technical documentary; without the medium of film, few audiences would be moved by hearing a politician speak in the abstract about scientific facts.

In this chapter, I will focus on three narrative or dramatic story lines in AIT that I believe are intended to work together to get the audience to experience the scientific authority of climate change and to put the audience into a different relationship to these facts and their meanings. These three narrative themes make use of the documentary medium along with Gore's persona as a social leader, persuader, and in some ways model citizen to create virtual experiences of climate change, which implicate conceptions of science as a way of knowing and acting on matters of scientific fact. These narrative themes in AIT, I shall show, parallel three different themes that scholars have identified in the general study of the rhetoric of science: science as a story of perpetual discovery, science as reference, and science as an agent of moral prosperity. The focus of the analysis of AIT is how Gore uses these three narrative themes or warrants to bolster the "facts" about climate change. Therefore, the general questions of this chapter are where the "authority" for scientific "facts" comes from and why has this existed as the big mystery and controversy about climate change rhetoric—where we have encountered unexpected resistance and counternarratives. Additionally, I argue that all three of these narrative themes are all aspects of the general "enlightenment story" and that the narrative of scientific discovery is the more general rhetorical manifestation—reminding us of the "progress" and continuing march of science and technology.

In this regard, "reference" and "moral prosperity" are but elaborations, developments, and extensions of this more general rhetorical thread of the science as discovery narrative.

Science as Discovery

The story of scientific progress is a central part of the story of western civilization. At least since Descartes,[12] the story of science itself has been one of "enlightenment"—an awakening of truth and reason by instrument, method, and embodied technique of science. "Enlightenment," as a term used to designate the spirit and aims of eighteenth-century French philosophers (Berlin, 1956; Gay, 1959), generally connotes to the traditions of reason and scientific praxis. Specifically, the era many historians warrant as the "age of Enlightenment" also often implies "shallow and pretentious intellectualism [as well as] unreasonable contempt for tradition and authority" (Schmidt, 2003, p. 442); especially contempt for the traditions and principles instilled by religion. As a result, the story of enlightenment is parallel to the narrative of scientific progress and as a rejection of beliefs not commensurate to the standards of the scientific method. The tension between science and religion or tradition is part of the "rhetorical problem" obstructing the climate change debate.

As observed in Chapter One, scientific power and authority are kept alive through rhetorically charged language. That language, however, often reflects shifts in knowledge paradigms and is taken as demonstration of the power and productivity of scientific discoveries to push civilization along. Science, framed through the enlightenment story, implicates the discoveries of scientific practice, which often become the symbols for nonscientific culture, as objects that shift paradigms and "enlighten" publics. "Discovery," as the term applied in AIT, might best be understood as a world hypothesis or root metaphor.[13] Just as in countless religious narratives where

[12] I mention Descartes in reference to a positivist paradigm, to which I am arguing that the enlightenment story is often coupled with. See Kaboub (2008) citation for information on positivism.
[13] Pepper, S. C. (1967) Concept and Quality: A World Hypothesis. Pg. 3

human experiences have heroine archetypes (e.g. as with many Judeo-Christian narratives), the scientific orations of Gore ground scientific "actants" (Latour, 2004) on a paradigm of enlightenment through discovery. Conformity to this discovery narrative, and larger enlightenment connotation, is the defining quality of the scientific temperament, as demonstrated in Gore's numerous accounts of the uncovered artifacts of scientific discovery. Conversely, Gore attempts to show the negative consequences of those unwilling to accept the progressive movements that spawn from such discoveries, even if those consequences manifest as social stigmatizations. With the science as discovery narrative as the basis for Gore's remarks, this particular rhetoric is predicated on audience members to adopt consubstantiality, identify with Gore's mediated vision of the future, and to view themselves metaphorically as "agents of enlightenment" through the discoveries presented in the name of scientific authority.

This prescription of scientific persuasion is successful when the symbols of science are adopted by the general public. As John Dewey (1931) observed, the outward forms of scientific advancement that "progressed" civilization along were due to "the products of the machine and its technology" (p. 200); instruments that symbolized new opportunities to reinforce the discovery and enlightenment story. While the technologies of science are frequently represented in popular culture as tools that extend human capacities to do, see, and experience more, thus allowing human beings to solve problems we may not otherwise be able to, the symbolic resonance of technology seemed less effective to captivate audience attention on certain matters of scientific fact. There are many reasons for this. Thomas Lessl (1985), for example, made a similar observation, noting "the machines of scientific research are not only revered but also regarded mysteriously by the uninitiated" (p. 176). Instead, scientific persuasion seems more successful when rhetors use the natural objects of inquiry as the symbols of scientific culture. This is due to the fact that "unlike technological artifacts, the natural objects of scientific inquiry already have a sacred quality for the

public at large and can act as common symbols uniting science and society" (p. 176). A particularly successful example of this, outside of AIT, is the popular television series *Cosmos*. Both the original series (1980) and the remake (2004) presented scientific concepts to nonscientific publics, focusing more so on natural objects such as planets, stars, galaxies, and living organisms. As an attempt to persuade about science, the series did not seem concerned with maintaining scientific integrity (Lessl, 1985) or with the practical applications of scientific technologies. Instead, the rhetoric of science as discovery seemed central as a narrative considerably effective in the popular series. Specifically, the series presented the beauty and wonderment of these natural, "cosmic" objects by framing them as the "discoveries" of science to which brought the sanctity and symbolism of the enlightenment story.

Narratives of scientific discovery articulate the basic telos of scientific progress (Rushing & Frentz, 1989), along with the development of enlightenment and modernity narrative themes that occur frequently in scientific pedagogy. These reoccurring themes employ a rhetoric that conditions publics to think of modern life, and themselves as modern citizens, as part of an elevation and evolution guided by scientific reason and discovery. This conceptualization of science through a rhetoric of discovery and enlightenment shapes publics to be prepared when presented with new "discoveries" and how their lives will be changed and made better by them. In this regard, it is no surprise that AIT repeated this perpetual narrative theme because of its past success in former public scientific messages.

Additionally, the science as discovery and enlightenment narratives introduce what John Dewey (1933) referred to as the "quest for certainty" and created what Richard Bernstein (1983) described as our collective "Cartesian anxiety," the anxiety rooted in our own skepticism about certainty regarding society's most complex matters (e.g. climate change). This tension between the urge to "discover certainty" and the constant "anxiety of uncertainty" frames very interesting

stories of scientific discovery and enlightenment. What is interesting about these depictions and the rhetorical language supporting them is the multiple narratives and sub-narratives imbedded within each discovery motif. While there are general themes that exist in each story of science's "quest for certainty," the specifics of each depiction are what provide the details of a particular rhetoric; demonstrating the historical and cultural context needed to truly understand how a rhetor is employing these narratives in their attempts of persuading nonscientific publics. When scientific rhetoric satisfies the cultural, historical, and moral impulses of a public, as I shall show is the case with AIT, it serves to illuminate where scientific authority is employed through the film's dominant narrative themes or dramatized accounts.

The ground work for Gore's discovery narrative is laid in his opening remarks. First, the conditions that bring forth Gore's rhetoric are characterized by divisions, which transpire on many levels.[14] These divisions are the initial discrepancies the film must resolve. For example, communicating the science of climate change to non-scientific publics presents a division of expertise; one that Gore must bridge through his rhetorical practice. The issue of climate change itself not being seen as a universal problem is another important division. Gore constantly addresses the skepticism of, and resistance against, scientific evidence supporting observations of anthropogenic climate change. As a result, the political turmoil, social discrepancies, and actual degradation of landmasses (e.g. melting artic glaciers) all represent continuous divisions that call forth particular rhetorics. In other words, they are the social obstacles Gore must overcome to effectively persuade his audience.

The presentation of symbols of identification, according to Burke (1969a), are often fashioned to resolve such divisions, as a way for people to forge argument and organize their

[14] This could be thought of as a "rhetorical situation" as defined in Lloyd F. Bitzer's (1968) The Rhetorical Situation. Philosophy and Rhetoric. Vol. 1, pg. 1-14

actions. As noted, the symbols of science can be used as the symbols for non-scientific culture, as well as building common ground with non-scientific audiences. Accomplishing this requires a rhetoric that attempts to create what Burke calls consubstantiality, a sense of shared substance (p. 20). In this regard, Gore faces a clear rhetorical dilemma. Even though he is a nonscientist, Gore must find a way to bridge the gaps between scientific materials—which are foreign to his nonscientific audiences—his political persona, and the moral implications of traditional climate change arguments. On this account, Gore's remarks could easily be considered more political than scientific, as well as not scientific enough for actual climate scientists. In this light, as Lessl (1985) notes, "one should not be surprised to find the popularizer of science regarded by his professional peers as an outcast or heretic" (p. 176), or in Gore's case, as a political opportunist attempting to solidify his influential appeal. In an attempt to create consubstantiality, Gore employ's multiple images of the "natural objects" of scientific inquiry to forge common ground in spite of these connotations.

Gore presents multiple images of the Earth to evolve the narrative of discovery. Beginning with the photograph called Earthrise, Gore establishes a frame for thinking about what science—its methodologies, perspectives, and practices—has accomplished as an agent of enlightenment. This is where Gore first uses the natural objects related to "cosmic" inquiry as the central symbols of his discovery narrative. In Gore's description of the Earthrise photograph, he addresses the major themes frequently associated with Earthrise's parentage. First, he describes the moment when Commander Frank Borman, Command Module Pilot James Lovell, and Lunar Module Pilot William Anders began their orbit around the moon, how they lost radio contact momentary as they were shadowed by the dark side of the moon, and how they reestablished a signal just in time to capture Earthrise and share their astonishment with the world. Gore mentions these minor details to grow the suspense and anticipation of the discovery narrative. In this moment, the audience

understands Borman, Lovell, and Anders' amazement in vivid detail as they gaze at the historic photograph for the purpose of recreating the impact that this "discovery" first had on the world.

Earthrise is the most frequently reproduced anecdote of the science as discovery trope because it evokes the enlightenment story, situating its symbolic significance. Captured in 1968 during the Apollo Eight mission, the iconic photograph crystalized a moment in history, representing a transformation in how human beings saw themselves adrift in the cosmos. Using the descriptive word "discovery" here is not intended to suggest that human beings were unaware of the knowledge that this image provided. Illustrations of Earth as a sphere were already centuries old (Edwards, 2010, p. 1), along will our understanding of Earths suspension in the cosmos. Nevertheless, many saw something profound in this photograph beyond the beauty of Earth and the knowledge it implicated. What they saw was a narrative of discovery; a grand adventure into the frontier of space; as an act of leaving what we know in the hopes of finding more about who we are; of secrets waiting patiently in the darkness to be revealed. These emotional appeals are apparent and were successful because of how they spoke to the cultural and historical significance of the discovery symbolism. Earthrise spoke to a time, a place, and a people who were all subject to transformation by a photograph that reframed something about themselves. Gore's introduction to Earthrise can be understood as an attempt to recreate the cultural and historical connotations that provide unity to the existing divisiveness around climate change discourse, as well as understanding science as a quest for epistemic certainty. In this regard, Earthrise is used to speak to American unity and exceptionalism by means of scientific discoveries, as well as traditional appeals to objectivism.

This is made apparent in the historical and cultural context of the photographs initial public reveal. For example, once the Apollo Eight crew returned to Earth, then President Lyndon B. Johnson mailed framed copies of Earthrise "to the leaders of every nation as an allegory of the

inevitable unity that encompasses all human division and diversity and binds us to the natural world" (Edwards, 2010, p. 1). From this vantage point there were no lines separating nations, no indication of claimed lands, no geographical subdivisions separating people. Instead, their photograph depicted a visualization of Earth and implicated the discovery narrative it told of American ingenuity and scientific progress. Paul N. Edwards (2010), a historian of science, describes the global reaction this photograph induced. He notes, "That small blue ball, spinning alone in darkness: it hit you like a thunderclap, a sudden overwhelming flash of insight. You saw, all at once, the planet's fragility, its limits, and its wholeness, and it took your breath away" (p. 1). He compares this reaction to comments made by Lawrence Tribe, a law professor at Harvard, that described Earthrise as a "fourth discontinuity," which can be described as a massive shift in perspective, or "paradigm shift" as Kuhn (1992) would term, which can be compared to those brought on by Copernicus, Darwin, Einstein, and Freud. Edwards (2010) continues by claiming that in the following year, 1969, "fourth discontinuity" was refined by David Brower into the popular phrase: "Think Globally, Act Locally."

"Thinking Globally" is predicated on the fundamental assumption, as stated in Chapter One, that the world is intelligible. Edwards extends that materialist naturalist assumption by claiming that the powerful Earthrise photograph allowed humans to see the planet as an interconnect knowable whole, but in a manner that,

> "lacked the secure stasis of maps, parlor globes, or pre-Darwinian cosmologies. Instead, it meant grasping the planet as a dynamic system: intricately interconnected, articulated, evolving, but ultimately fragile and vulnerable. Network rather than hierarchy; complex, interlocking feedbacks, rather than central control; ecology, rather than recourse: these are the watchwords of the new habit of mind that took Earth's image for its emblem" (p. 2).

The slogan and photograph conveyed all of this not just because of their content, but because of when they were produced. By this Edwards meant that they,

> "fell directly into an overdetermined semiotic web prepared by the post-World War II "One World movement; the United Nations; the 1957-58 International Geophysical Year, with its

> scientific internationalism and powerful appeal; the Earth-orbiting satellites Sputnik, Telstar, and TIROS; the many variants of systems thinking descending from operations research, cybernetics, and early computer science; scientific ecology; and what I have called the "closed world discourse" of Cold War politics" (p. 2-3).

This is important to articulate because it demonstrates that conceptions of a planetary or global perspective existed long before AIT's treatment of the discovery narrative. What made the narrative of Earthrise significant was how it was used to address the anxiety of post-war sentiments, scientific internationalism, the continuing threat of nuclear war, and desire for further scientific progress. Science as an agent for enlightenment fought for narratives of progress not for the blind optimism of science, but as a means for contextualizing fear and frustration through a discovery that would cure societal ills by reframing global awareness and offer potential solutions to existing problems. In a sense, science as discovery—as a narrative of humans discovering material and symbolic treasures—has less to do with the process of producing knowledge and has more to do with conceptualizing science as a descriptive term used to operationalize authority in culture. Scientific authority framed through perpetual discovery narratives may use facts, or things discovered, as chief representations, but speaks more to human problems and their solutions through historic and cultural symbols.

Following Gore's presentation of Earthrise, the discovery narrative functions to contextualize the multiple scientific facts supporting the problem of anthropogenic climate change. These scenes play out in a repeating order throughout the film: the discovery (scientific fact), the prediction derived from that discovery, and the flashback contextualizing the anxiety associated with it. As stated in Chapter Two, for example, another discovery anecdote that Gore shares begins with details of his time as a student at Harvard where he studied under Rodger Revelle. Gore credits Revelle as being the first person to propose measuring the carbon dioxide levels in the Earth's atmosphere. He states, "[Revelle] saw where the story was going after the first few chapters; after the first few years of data, he intuited what it meant for what was yet to come" (Guggenheim,

2006). This anecdote frames two separate discovery accounts: Gore's and Revelle's. First, Gore credits Revelle as the literal discoverer of rising atmospheric carbon dioxide levels, thus granting him "ownership" over the problem.[15] Utilizing the documentary format, Gore is able to present early photographs of Revelle and the plotted line graphs demonstrating his early measurements. Framing Revelle as discoverer implicates ownership and scientific authority, making him the foremost expert on this topic; thus giving him rhetorical power (i.e. authority) to shape the problem and its solutions. The presentation and description of his findings begins the films reoccurring order by presenting his measurements as the initial representation of this discovered scientific truth.

Second, Gore's personal discovery narrative—a college student who discovered the truth through studying Revelle's measurements—is framed as an awakening to truth by means of personal discovery. Through personal testimony, Gore describes science as an agent for enlightenment due to the progress of his own intellectual journey that "advanced" his thinking and revealed to him the "truth" of anthropogenic climate change by means of scientific facts. In this story, Revelle's early measurements reframed how Gore saw his place on the Earth. Not as a harmless resident, but as an agent powerful enough to influence the global climate. Additionally, the use of the term "mentor" describing Revelle's relationship to Gore is a rhetorical move suggesting a closer rapport than terms like "teacher" or "professor" would suggest. Gore, the mentee of the actual discoverer, forges this connection to build his own credibility as a discoverer as well; as someone who was transformed by scientific facts.

Lastly, this theme extends to the final scene of the film where Gore makes one final attempt to leave the audience with this narrative. He notes:

> "You remember that home movie of the Earth spinning in space. One of those spacecraft continuing on out into the universe, when it got 4 billion miles out in space, Carl Sagan said, "Let's take another picture of the Earth." See that pale blue dot. That's us. Everything that

[15] See what Joseph Gusfield (1984) calls "ownership" of a public problem, which necessitates a close examination of the cultural, historical, and strategic implications of what is declared a scientific discovery.

> has ever happened in all of human history has happened on that pixel. All the triumphs and all the tragedies, all the wars, all the famines, all the major advances: it's our only home. And that is what is at stake: our ability to live on planet Earth, to have a future as a civilization" (Guggenheim, 2006).

The notorious Pale Blue Dot photograph was displayed on the main screen behind Gore and quickly expanded to cover the scenes entirety. It was captured by the spacecraft Voyager One, which was a space probe launched by NASA on February 14th, 1990. Its mission was to travel toward the edges of the solar system, taking pictures and exploring the wonders of the cosmos along the way. Upon request of Carl Sagan, NASA engineers turned its cameras around and took one final photograph of Earth from a distance of about four billion miles away. The photograph displayed a small, faded blue pixel of light in a ray of dispersed sunlight inducing a rainbow like affect. The photograph was made famous by Sagan in the book Pale Blue Dot (1994) which, similar to Earthrise, shifted our cosmic perception and our global awareness. Gore's commentary echoes Sagan's famous reflection of the image—that we are unified because of our location, interdependence, and seemingly uniqueness in the cosmos—and bares similarities to the message of inevitable unity President Lyndon B. Johnson had in mind when he mailed framed copies of Earthrise to the world's leaders. As a result, this final scene not only reinforces the implications of science as discovery, but also reinforces a global perspective that is fundamental to solving this problem.

The point that I am attempting to make is this: that the frequently employed term "discovery" and the enlightenment narrative of science frame how we address certain scientific problems, propose solutions to those problems, and shape how we think of science generally. As these examples exhibit, the discovery narrative of science is central to AIT's application of scientific persuasion and extends a history of thinking about science that is still alive today. Beginning with the Earthrise photograph, the science as discovery theme frames a pattern of development (fact, prediction, personal anecdote) that appeals to publics who may not initially take interest in this

topic. The dramatized discovery motif not only shapes our conceptions of science, but is strategically effective in arousing interest about this topic. In the next section, I will demonstrate how the conception of science as reference extends the discovery narrative in AIT, as well as further develops a critical vocabulary of science.

Science as Reference

The initial appeal to "reference" was introduced to rhetoric of science's critical vocabulary due to the intractable conflict over language's inability to hold oral and written representations accountable to material experience (Bazerman, 1988). For many, it became clear that addressing everyday issues of science writing, practice, and literacy became impossible without invoking fundamental questions about validity, power, and the associated behavior and communication of science generally (Bazerman, 1988; Latour, 1999, 2004a, 2004b). In a sense, it appeared that scientists as well as the general public desired a divorce between actual scientific practices and the symbolism of enlightenment and discovery narratives. The theoretical and methodological underpinnings guiding rhetoric of science scholarship—as discussed in science as discovery—made it difficult for science scholars and even scientists themselves to answer the simple question "what do scientists do?" without invoking established conceptions of positivism and objectivity. Charles Bazerman (1988) addresses this rhetorical obstacle in the beginning of his widely recognized chapter "Making Reference" from the book *Shaping Written Knowledge*. He describes how the debate over scientific language seemed driven by the "epideictic, either to praise science for its truthful language or to blame it for the hubris of claiming a privileged path to knowledge" (p. 187). "Reference," a term emphasizing the pragmatic accounts of scientific practice, was intentionally agnostic about claims of objectivity or truth. Instead, scholars like Bazerman emphasized a notion of accountability which is, according to Herndl and Cutlip (2013), "an openly pragmatist position in which the consequences and results of the account determine its power and efficacy" (p. 2). In

a sense, this was a reduction to materiality and pragmatism in an era of "materialist ontological inquiry," which can be considered as a rejection to Descartes positivistic "quest for certainty" (Dewey, 1931), as well as the symbolic understanding of scientific representations in the public.

Herndl and Cutlip (2013), echoing Randy Harris (2005), sum-up what is happening in the rhetoric of science today in a single word: "Latour" (p. 2). Herndl and Cutlip make this assertion in answer to a call from the field for additional critical vocabulary and praxis for engaging scientific discourse. Latour (1991) answers this by providing what he calls "realistic realism" to reground a "non-modern" view of science, which rearticulates how we should think, discuss, and practice science today. As Herndl and Cutlip (2013) continue, noting "Both [Bazerman and Latour] avoid postmodern critiques of reference and examine scientific practice to construct a realistic, almost pragmatist account of reference. Both examine scientific practice… Both want a more practical theory of realism" (p. 2). The difference, however, stems from Bazerman's focus on how metaphors such as "contact" and being in "close relation" (p. 192) constitute the seeing and representation of material phenomena (e.g. transcriptions of interviews, written descriptions of weather patterns, academic journal articles describing findings, and so on). Through the examination of individual behavior and practice, Bazerman notes, "the discourse is brought into increasingly close and precise exchange with the phenomena being examined. Through living people, the symbols of language come into contact with the world" (p. 188). While effective in the modernist understanding of science, Bazerman's metaphors continue the constraints of science as mainly epistemological, resulting in the problem of accurate scientific representations; a problem with skepticism regarding the legitimacy of science to make "true" claims about the "external world."

According to Latour (1999), "the best way to understand the reality of science is to pay close attention to the details of scientific practice" (p. 24). In his publication *Pandora's Hope* (1999), Latour

makes a case for how we should understand the procedures of science by examining the actual movements of scientists. In his examination, Latour puts to exercise what Bazerman merely theorizes by tracing the detailed practices of a group of soil scientists on a field expedition in the Amazon. These scientists have come to examine the edge of a dense forest. One side of the forest, Latour describes, "Is dry and empty, the other wet and teeming with life, and though it may look as if local inhabitants have created this edge, no one has ever cultivated these lands and no line has traced the border, which extends for hundreds of kilometers" (p. 25). The question these scientists seek to answer is if the forest is advancing into the dry plains or is the lively forest retreating into itself? While their expedition is framed around an epistemological question, as in, how can science understand what is happening in the "external world?" Latour proposes an ontological question, as in, what do scientists and their environments actually do to co-produce knowledge?

While some may see Latour's task as that of the "old settlement," which constructs a tiny footbridge between the words of science and their corresponding worlds – by tracing a path between different ontological domains (i.e. nature and language) – Latour thinks otherwise. He claims that "there is neither correspondence, nor gaps, nor even two distinct ontological domains, but an entirely different phenomenon: circulating reference" (Latour, 1999, p. 24). In this, Latour rejects the distinction between word and world, between material and representation, and "describes how reference brings back into discourse the material reality of the world that finally makes science legitimate" (Herndl & Cutlip, 2013, p. 3). In a sense, Latour uses "reference" as a descriptive word referring to embodied science as a knowledge-producing endeavor; one that reduces concerns and credibility back to the material. By tracing the steps taken by the soil scientists, Latour is able to construct a series of events which begin with the forest and ends with the expedition report. This chain of transformations, this series of references, describes the phenomena in question not as "the meeting point between things and the forms of the human

mind," but instead suggest that "phenomena are what circulates all along the reversible chain of transformations" (Latour, 1999, p. 71). Therefore, the reality of science, Latour argues, is a process of "circulating references," tracing meditations from matter to form which provide an understanding of science as a series of significant steps taken by scientists. This theory of reference changes our question regarding the scientific authority of Gore and the documentary format. It is no longer about what "science" knows, but rather what scientists do and how their physical actions turn into facts. Thus, scientific authority is no longer epistemic, but pragmatic.

"Reference" becomes a key term in the vocabulary of science because it transforms how we think, discuss, and act on matters of scientific fact. "Reference" is not just about providing descriptions about how scientists discovered facts. Instead, this theory changes what we characterize as science; as practice of scientists and not representations of discovered truths. As a result, we can think of Latour's contribution to science as "reference" as one that offers a general argument about the idea that foundational, philosophical, ontological, and epistemological arguments (i.e. philosophy of science) are not the best way of providing certainty and belief in scientific truth, but that the ongoing process of scientific reference (or "circulating reference") is. Therefore, Latour alerts us that rhetorical processes and narrations about scientific practice are what really give science it's authority. In other words, this conception of science cannot be separated from practice and is no longer about truth but rather about "scientists doing good science" (Bazerman, 1988, p. 191).

This perspective of "reference" is applicable in this examination of AIT. Specifically, "reference" can aid my analysis of how Gore's rhetoric of discovery, and the larger enlightenment narrative, uses the practices of science to create scientific narratives and bolster our sense of scientific authority. Conversely, Latour's contribution to "reference" does not necessarily address how the popular public perceives science. Instead, he is describing the epistemics of scientific

authority, which reminds us that the central question facing climate change as a rhetorical problem is from where does scientific authority come from—in this case not for scientists, but for the general public. Additionally, science as a system of "references" is not really something the public witnesses, but when depicted through the documentary format, the "reference" theme becomes a form of public rhetoric in which Gore stories the actions of real scientists doing real things to find facts. Without the documentary format, "reference" merely functions to destabilize foundational epistemology as the basis for "truth," but serves no benefit to the act of public scientific persuasion. It is the documentary format that provides Gore with a "rhetoric of facts" (Schoen, 2012).

Gore Describing Practice

How does Gore travel from the Earthrise photograph to anthropogenic climate change - or better yet – from Earthrise to an entirely new scientific understanding of the Earth? To frame this question differently, in the words of Bruno Latour, how does Gore shift from "ignorance to certainty, from weakness to strength, from inferiority in the face of the world to the domination of the world by the human eye" (Latour, 1999, p. 30)? Answering these questions requires an understanding of how the documentary narration of scientists making discoveries makes the enlightenment story a more embodied, concrete, and dramatized experience. In other words, it is a public/filmic depiction of this particular aspect of the rhetoric of facts—a visualized narrative that is in a way a parallel to the argument about the epistemics of reference. Essentially, these questions address how the film stories depictions of science through a traceable series of steps that the audience can follow and understand.

As noted, one of Gore's anecdotes provide an explanation of Roger Revelle's early experiments during his time leading the ACDP (Atmospheric Carbon Dioxide Program). Gore begins by noting,

> "[Revelle] showed our class the results of these measurements after only a few years and they startled me… I soaked it up like a sponge. He drew connections between the larger changes

> in our civilization and this pattern that was now visible in the atmosphere… He projected into the future where this was headed unless we made some adjustments and it was as clear as day. After the first seven, eight, or nine years you could see the pattern that was developing" (Guggenheim, 2006).

From here, Gore moves on to share Revelle's prediction which was derived from his actual measurements. As a means of providing the details necessary to consider this a discovery narrative, Gore briefly describes a dramatized version of how Revelle discovered this problem by sending weather balloons into the atmosphere in order to measure and produce the "hard numbers." Using photographs, video clips, and basic animation, Gore utilizes the functionality of the documentary format to provide additional visualizations supporting his anecdote. His description is coupled with still images and videos of scientists sending weather balloons up into the sky, which were the tools used to measure atmospheric carbon dioxide levels far out in the remote waters of the Pacific. While these descriptions do support depictions of science as discovery, reframing the question of science from epistemological to ontological reframes the functionality of these descriptions. Using a theory of reference transforms the entire drama of science. In a sense, this demonstrates that the interpretation of science is ultimately guided by the vocabulary one has to understand it. When that vocabulary changes, so does the context and meaning of science. This scene in particular, through the science as reference narrative, demonstrates how the physical doings of scientists, their instruments, and environment function together in order to measure the atmospheric carbon dioxide levels that produce a fact about the world. In this first depiction of science as reference, Gore invites the viewer to understand scientific facts through the storied depictions of "doing science." His descriptions arouse the symbolism of scientist as the epitome of what science is through a traceable series of plausible references. The documentary format allows for a clear "following" of scientists as they work, as well as creates an additional sense of "actants" co-producing knowledge. The viewer feels as if they witnessed the actual practice of scientists and are compelled by that sensation of investment even if it is just an illusion. Through this conception of

science, Gore and the viewer become agents of scientific facts through the manner of framing science as an embodied act. The scene itself (the focus of the documentary's following eye) functions as agency for facts by the visualization of both scientific practices and the presentation of "first-hand" experiences of engaging in the act.

In this same vein, additional images were presented throughout the film to visualize how climate change was creating dangerous conditions all over the world. For example, after Gore shared the research of Revelle and his colleagues during the end of the twentieth-century, Gore's focus shifted in order to provide the proof of how climate change was causing degradation to certain at-risk landscapes. He began with images and commentary describing the consequences of the melting permafrost, which is a thick subsurface layer of soil that remains frozen throughout the year. Because of the warming climate in places like Alaska, trees that rooted on top of the permafrost are now literally falling over, buildings are collapsing because of destabilizing foundations, roadways are becoming un-drivable, and oil pipelines are suffering from worsening structural damage which could result in uncontrollable oil spills in certain protected areas in northern Alaska. These graphic images depicted utter tragedy inflicted upon people living in these regions and connected perfectly to the theme established by the earlier images of Earth. The global perspective instilled in the audience a sense of responsibility for what was happening in these places and with this truth accompanied a sense of anxiety about what to do about it. Gore then presented images demonstrating heavy glacier ice melting along the polar ice caps and contended that this melting was the cause of rising sea levels. Microscopic images of spreading infectious diseases such as the Avian Flu and West Nile Virus were then presented along with graphic images demonstrating related threats from insects like mosquitoes, which are now migrating to new warming climates where they haven't been able to survive before. Once again, each of these images provide visualized scientific facts and demonstrate the connected human implications that could potentially worsen.

Each of these examples (melting permafrost, glacier ice, and spreading diseases) are all described as discovered scientific facts, all of which caused by the larger climate issue and are all articulated in a manner that continues the discovery narrative of science.

In these scenes, Gore uses the "translation" metaphor, as in scientists translate nature into the shared concerns of humans and nonhumans alike. This mimics the terminology proposed by Latour (2004a). Instead of employing metaphors of "contact" or being in "close relation" like that of Bazerman, Latour uses terms such as "translation" and the prefix "quasi" to describe the ontological similarities between the doings of humans and nonhumans. Through this descriptive shift, Gore is attempting to decentralize the human agent in scientific discourse, as one of many "actants" existing together, co-producing knowledge. This rhetorical move emphasizes two aforementioned perspectives: 1) that the world can be "translated," as with an intelligible universe, and 2) that humans can and do influence the equilibrium of nature because of the fact that we are a part of nature—both existing and producing knowledge equally.

Annemarie Mol (2002) extends this Latourian perspective by examining the different ways illness and disease are embodied and articulated. She states, "in addition to *disease*, the object of biomedicine, something else is of importance too, a patient's *illness*. Illness here stands for a patient's interpretation of his or her disease, the feelings that accompany it, the events it turns into" (p. 9). This indicates the different ways in which human illness can be viewed. On one hand, a disease materializes in the form of its molecular composition. On the other hand, the same disease materializes as an illness that infects and affects the human host. Graham and Herndl (2013) describe this through a theory of multiple ontologies, which they claim "offers a different and productive set of metaphors and analytical tools for examining the rhetorical activity involved in what Pickering (1995) called the "Mangle of practice"" (p. 104). Does articulating the different ontologies of the disease diminish one or the other? No, they simply provide an understanding of

science that is not primarily an epistemic methodology, but rather as a material practice. This is not to be confused with a "perspectivalist" theory of one phenomenon and multiple interpretations which Mol rejects. Rather, it constructs science as an activity that connects humans and nonhumans in building networks of things that produce facts, objects, and ultimately different things.

Both Mol and Latour construct a notion of science as a material, traceable practice and not around epistemic certainty. In AIT, this theme of science as reference is frequently present within descriptions of "scientists [behaving] like scientists [while doing] good science" (Bazerman, 1988, p. 191). To clarify, Gore does not mention this pragmatic, ontological approach as the intent behind his descriptions. Frequently, Gore's storied depictions of scientists doing science are used as additional context supporting the validity and legitimacy of the scientific facts presented through narratives of discovery. They demonstrate why a fact is seen as a fact and how that fact came to be. However, using the critical term "reference" highlights a contemporary strategy for understanding rhetorical approaches to scientific discourse. I am not implying that descriptions of material practice are new to the world of scientific discourse; quite frankly, that would be absurd. Instead, this theoretical and methodological shift in understanding a rhetoric of science through reference broadens our critical vocabulary regarding scientific persuasion and provides an alternative approach for unpacking scientific representations in documentary films.

As described by Mol (2002), science as reference often inscribes agency to non-human agents that aid humans in their creation of scientific facts. An example of this takes place toward the end of the film where Gore urges the audience to consider the danger that often comes when humans mix old habits with new technologies. He notes:

> "Here's a formula to think about: Old habits plus old technology have predictable consequences. Old habits that are hard to change plus new technology can have dramatically altered consequences. Warfare with spears and bows and arrows and rifles and machine guns, that's one thing. But then a new technology came. We have to think differently about war because the new technologies so completely transformed the consequences of that old habit that we can't just mindlessly continue the patterns of the past. In the same way we have

> always exploited the Earth for sustenance. For most of our existence we used relatively simple tools: the plow, the tractor. But even tools like shovels are different now. A shovel used to be like this. Shovels have gotten bigger and every year they get more powerful. So, our ability to have an effect on the surface of the Earth is utterly transformed" (Guggenheim, 2006).

In these descriptions, science becomes the potential solutions and consequences of new technologies. What we consider as technological progress is framed here as an evolution of material instruments that alter the possibilities and consequences of repetitive human habits. Here, science is described as a storied reference to both the human and nonhuman agents, which inscribes agency to Gore, the one sharing the narrative on behalf of science, the instrument used in the practice, and the scientists whose ability to "know" and "do" is altered by the instrument. To clarify, I am not interested here in the theoretical possibilities that orbit this human-nonhuman relationship per se (i.e. as with post-humanist theories). What I am interested in, however, is the manner in which science is given authority through the descriptions referencing material doings of people and things to build credibility for science. In this moment, science is a narrative of the material; it is a reference to things that can be easily seen and heard by the images and videos used in each scene.

Another central example takes place as Gore presents the Keeling Curve to the audience. The Keeling Curve refers to the recorded measurements of atmospheric carbon dioxide levels taken by Roger Revell and David Keeling during the Atmospheric Carbon Dioxide Program (ACDP). The program took place between 1956 and 1958 at the Mauna Loa Observatory in Mauna Loa, Hawaii and was in collaboration with the Scripps Institution of Oceanography. Science as reference shifts from first discussing the scientific practices of Revelle and Keeling to the advocacy of Gore. As the Keeling Curve grows on the main screen, in clear view of the audience, Gore provides a traceable series of events that demonstrate the steps he and others have taken over the last three decades to advocate for this global issue. His traceable series begins in 1958, when Revelle and Keeling began their measurements, then moves to the mid-1960's when Revelle first showed

Gore his findings in a lecture hall at Harvard. During the late-1970's Gore sat on the Science and Technology committee and the Energy and Commerce committee, where he initiated the first hearings on global warming. Moving to 1984, Gore was elected for a seat in the United States Senate, where he continued to raise awareness on this issue through science round tables and the like. In 1988, Gore unsuccessfully ran for President of the United States. He claims that his run was in part to raise awareness for this issue. In 1989, Gore wrote his first book *Earth in the Balance*, which was later published in 1992. In 1997, Gore traveled to Kyoto, Japan to support the Kyoto Protocol, which committed state parties to reduce their carbon emissions, based on the premise that anthropogenic global warming was a threat to the planet as a whole. In this story of reference, Gore highlights a traceable path of advocacy to which his credibility and authority stem from. This series of events provides depictions of Gore the political advocate as doing the work of scientific advocacy. While our theory of reference, as it relates to Gore's political past, does not provide a better understanding of science, it does carry over the science as reference theme to depict Gore just as it depicts scientists. By comparing these related scenes, Gore's authority is created by the development of scenes through the documentary format; as a traceable series of transformations equal to that of Revelle and Keeling. Here, Gore becomes the symbolic scientist. His actions directly correlate to the advancements of the scientific word. He may not have sailed out into the Pacific and released weather balloons into the sky, or dug into the earth in order to collect samples of the soil, but his mission is similar. His experiments take place not in laboratories but in lecture halls and behind government podiums. These descriptions, once again, invite the viewer to see science as a series of references which can be traced, examined, and ultimately proven through the strength and credibility of the meta-narrative.

As we can see from these two chief examples from the film, science as reference constructs a storied notion of science as a material, traceable practice and not around epistemic certainty. The

audience is presented scientific facts through distinguishable references of storied engagements and the influences of all players involved. The audience, therefore, is urged to respond by embodying the role of fellow scientific practitioners. In other words, they are asked to understand science as a series of "circulating references," (Latour, 1999) describing scientific authority as a particular way of knowing how to do science rather than what science knows.

Both of these narratives derived from science's vocabulary (i.e. discovery and reference) provide ways of understanding the purpose, function, and authority of science—as stories that appeal to the sensibilities of considering their position on matters of scientific fact. To be clear, these storied depictions do not change or even challenge the procedures of the scientific method. Instead, each of these narrative themes provide multiple ways of describing and persuading others about science, as well as strategies for making sense of such depictions in culture. While some are captivated by a thrilling discovery story, others may simply prefer the detailed descriptions of "scientists doing good science" (Bazerman, 1988). In the last section of this chapter, I will provide my last depiction of science which will provide descriptions that bring the focus back to thinking about the benefits of science for creating a better, more promising tomorrow. This narrative of science as moral prosperity will provide our final dramatic frame for thinking about science and how it can aid scientific persuaders as well as fluctuate between epistemological and ontological conceptions of science.

Science as Moral Prosperity

The vision of science as a way to bring moral prosperity to human civilization is often characterized quite comparably to sentiments of progress, advancement, and revolution. As noted, I am sure Dewey (1931) had a similar idea in mind when he characterized "progress" as the offspring of the scientific method (p. 200), considering his descriptions regarding our "quest for certainty" and the presumption that it would result in knowledge beneficial to human well-being.

However, the longing for prosperity is not owned by a single conception of science or any other human endeavor. Popular science scholars of the twenty-first century such as Sam Harris (2010), Michio Kaku (2011; 2014), and Richard Dawkins (1986; 2006; 2011) for example are not shy about their trust in science to bring about such human well-being, happiness, and morally. Why else invest so much into something without at least the potential for human prosperity?

This connection, however, between "progress" and "prosperity" is misleading. Progress implies, and often infers, the onward movement toward a particular destination. Consider for a moment how the term has guided the field of evolutionary biology, in which the progress of "natural selection" assumes that recent animals are more advanced than their ancestors—an assumption that is highly disputed (Nitecki, 1988). Dawkins (1992) highlights the implications that "progression" implies when making sense of how nature is described and how humans characterize themselves in the "great chain of being" (p. 263). Dawkins states that this perspective frames certain species who have "progressed," become "advanced," or have "evolved" as smarter (p. 266), better adapt (p. 267), and more human (p. 268). These assumptions, as you may suspect, are not the most appropriate when the goal of scientific persuasion is to get people to accept scientific facts and often unify people over major global issues. As mentioned in Chapter One, the information deficit model approach of characterizing science skeptics (or in this case climate change skeptics specifically) as dumb or unevolved is not an effective strategy for this pursuit.

However, there seems to be a reoccurring dialectic between progress and prosperity; at least, when we examine the justifications for progress that result in the greater threat to human life. Take, for example, Gore's previous description of the atomic bomb. Scientific progress, on this front, created the atomic bomb for the very purpose of ending life; of causing the highest rate of enemy death while minimizing our own casualties. And even then, some could argue that such death brought the potential for life, liberty, and the opportunity for human prosperity—as a

deterrent for war. No matter how vile or cruel an act of progress may be, there seems to be distant conception of prosperity justifying it. When it comes to the issue of climate change, the ideal of human prosperity is always present as the dialectic of the common apocalyptic appeal of climate change messages. In other words, descriptions of past catastrophes and required scientific advancements create a common pattern that leads to and is justified by the vision of human prosperity.

The specific conceptions of such prosperity imaginaries are not universal. The particularity of prosperity narratives are indicative of certain rhetorics of science. In the atomic bomb scenario taken from the perspective of the United States, for example, prosperity is saturated in American sentiments over general human concern. This deterrent for war pays no considerations for the prosperity of the victims of American attack. Rather, moral prosperity here regards the survival and well-being of American life and value. In AIT, moral prosperity has more of a global emphasis, advancing a narrative of science that can save and enlighten all of earth's inhabitants. However, even though Gore's numerous global examples of climate change devastation advance this message, Gore must produce a rhetoric that not only advances a general sentiment of human prosperity, but also individual prosperity: as in, to save society, the individuals of that society must decide to save themselves. Thus, Gore's moral prosperity narrative will most likely appeal to the prosperity of western values advanced through scientific progress as the means to prosperous human longevity and well-being.

The point I am attempting to make is this: that within each narrative and description of science, the potential for human prosperity is more often than not framed as the distant goal of the practitioners of science and is always at odds with the idea of apocalypticism. The reason for discovering truth or developing better, pragmatic descriptions of scientific practice as it pertains to this issue is to save instead of destroy ourselves. Therefore, science as moral prosperity is my third

narrative of science used in AIT, which does a more effective job of implicating audience agency into this strategy of scientific persuasion because it will be their actions that help save us from our own demise.

This theme is implied in Edwards' (2010) description of the phrase "Think Globally, Act Locally," where he locates the call to individual action induced by this simple slogan. By articulating the different perspectives emphasized, Edwards claims that these four words,

> "assert an intimate relationship between two vastly different scales: macro, world-scale environmental and economic systems, on the one hand, and the micro sphere of individual choice and action, on the other. It extends an arrow of agency, comprehending macro effects as the results of vast aggregations of micro causes. Thus it locates the meaning of individual action in its relationship to the gigantic whole. Finally, it affirms that global change matters so deeply that it should occupy the intimate corners of everyday awareness and guide each person's every choice" (p. 1).

This observation, even though it wasn't expanded on here, is a fundamental rhetorical strategy within scientific discourse generally. In the book *Coping with Failure*, David Payne (1989) examines the scientific and dramatically apocalyptic rhetoric of four authors: Paul Ehrlich, Alvin Toffler, B. F. Skinner, and Jeremy Rifkin. In this chapter, Payne examines the rhetorical pattern of these authors which reflects what he calls "modern day apocalyptic discourse." He states, "While religious reformers use apocalyptic prophecies to convert sinners and forge proper followers, these scientistic reformers seek to produce future selves that will adapt by changing whenever social needs come into conflict with individual interests." Science here is represented as a kind of inclusive, spiritual way of knowing and determining nature and priorities (p. 62). Drawing on the similarities of science and religion, Payne highlights similar rhetorical patterns that produce a rhetoric that treats the problems of an individual in society by highlighting the *topos* of self-society. Through his description, he notes that,

> "The revelations of science can support the apocalyptic rhetoric that urges us to conform to some higher law before it is too late. Such rhetoric argues that there is or must be a schism between past traditions and future actions. Ultimately the rhetors reunify the future ideal with some Edenic idea or goal derived from the past. This rhetoric argues that there is such

> a vast gulf between spiritual ideals and material circumstances that either spiritual goals must be transformed or material actions must change in order to realign material reality with spiritual good" (p. 63).

Payne notes the parallel between the scientific concept of "adaptation" for survival and the socializing function of individual conformity. Both are considered behavioral reforms; changes in action that are derived from past events that shape a context which becomes conducive for individual survival. One of the many places this is highlighted is in his examination of B. F. Skinner's *Beyond Freedom and Dignity* (1971). Payne's contention is that the problems presented by Skinner are framed as failures of knowledge to which the solution is ultimately drawn from science's ability to produce better knowledge. He continues by claiming that Skinner also frames past societal problems on a degree of individualism; that the individual should change for the sake of the society based on past hardships and the prediction of future prosperity. While Payne's examination is much larger than the focus I present here, this relationship articulates a common perspective present in both epistemological and ontological descriptions of science (i.e. as discovery and reference) and the scientific persuasion in AIT. As I have demonstrated, even though descriptions of science differ in the scholarship and film, human prosperity, even in a vague sense, is often a central appeal within scientific discourse.

As described in Chapter Two, Gore highlights two crucial catastrophic trends that directly correlate to rising climate temperatures: heatwaves and hurricanes. This trend first demonstrates the reality of progress through images and videos of factories, cars, boats, and trains pumping thick black smog into the sky. Through Gore's description of the images, progress is equated to pollution, ignorance, and unmoral action. Here, progress is the smog released by machines; machines that no longer solve our problems but now cause them. In this moment, the audience is told to see the flaws in the era of the machine. What was initially described as the potential of science to push civilization along is now framed as a way to solve the problems it created. Gore

follows these depictions with graphs displaying the ten hottest years recorded by human beings. These measurements reveal that the last fourteen years (as of 2005) were the hottest years on record. The hottest of all, Gore dramatically includes, was 2005, which according to scientific predictions is only a fraction of what will happen if changes are not made to the ways human beings consume energy. He continues by describing the impact these heatwaves have had in specific places all over the world through additional images and videos that put this threat right in the faces of the audience. This begins what can be thought of as Gore's pattern of climate chaos.

In an attempt to provide specific details, Gore's first example is the 2003 heatwave which took place in Europe. The estimated death rate of this catastrophe, according to Gore, was as high as 35,000 people. Specifically, 15,000 deaths in France, 1,400 in the Netherlands, 13,000 in Portugal, 20,000 in Italy, 900 in the UK, and 100 in Spain. This breakdown provides a global perspective which continues to draw attention to Gore's emphasis on the urgency to act as it regards his global perspective. This also demonstrates what is at stake and for whom when it comes to anthropogenic climate change. It puts faces and names along with the tragedy. Specifically, he mentions Andhra Pradesh, India where the temperature spiked to fifty degrees Celsius or one hundred and twenty-two degrees Fahrenheit, killing more than 1,400 people. After providing addition information regarding heightened global temperature levels over landmasses, the focus then shifts to Earth's oceans, which make up seventy percent of Earth's surface and consists of ninety-seven percent of Earth's water (U.S. Geological Survey, Oct. 2016). As stated in Chapter Two, Gore displays a graph produced by the Scripps Institution of Oceanography (2005) which presents the predicted and observed ocean temperatures from 1940 to 2003. The graph's y-axis labeled the volume average temperature anomalies (0-100m) (C) and the x-axis labeled the time periods. The graph provided three areas of measurement: 1) predicted natural variability, 2) expected variation due to human causes, and 3) actual observed temperatures. The depiction of rising ocean temperatures presented

a pattern which Gore eloquently correlated to stronger storms. The drastic imagery of the rising observed temperatures line provided a dramatic reading of the measurements.

Gore's presentation of dangerous weather patterns again shifts to focus on a series of worsening catastrophes which were all impacted by the rising ocean temperatures. All of the following events took place during September 2004: Hurricane Jeanne which hit Florida, Hurricane Frances which tore through the Atlantic, and Hurricane Ivan represented the first series of worsening hurricanes. During the same time frame, the United States had a new record of tornados which reached 1,717. Japan had a record breaking ten typhoons in a single year. The science textbooks had to be rewritten, Gore claimed, because at that time it was understood that you couldn't have a hurricane in the south Atlantic. This was until Brazil had its first in March of that year. Progressing on to the summer of 2005 which was, according to Gore, a year for the books, started with Hurricane Emily which hit the Caribbean in July, then Hurricane Dennis which heavily impacted the oil industry by colliding with the world's largest oil platform in the Gulf of Mexico (July 11, 2005), and then there was Hurricane Katrina. Gore stated, "It's worth remembering that when [Katrina] hit Florida it was a category one. But, it still killed a lot of people and caused billions of dollars in damage, and then what happened?" By tracing Katrina's trajectory, Gore demonstrated that before it hit New Orleans it went over the warmer waters in the Gulf, which ultimately made it a stronger storm. As the water temperatures increase, Gore argued, the wind velocity increases, and the moisture content increases. This pattern thus concludes with one of the worse weather disasters that has ever hit modern America.

This pattern from 1940 to 2005 presents an assemblage of catastrophes framed as the result of blind scientific progress. The satellite images of the storms coupled with the stories of devastation present what Payne (1989) referred to as "modern apocalyptic discourse" and present descriptions contextualizing these past events as the justification for apocalyptic predictions.

According to Gore, this evidence—visualizations of scientific facts—is the scientific bases for knowing what will happen in the future if we do not act; if we do not change; if we do not adapt to the facts. The detailed depictions of this past hardships and catastrophes are the crux of this narrative. Anthropogenic climate change has spawned upon human kind in the form of hurricanes, heatwaves, typhoons, tornados, and the like. It has destroyed cities, killed thousands of people, and all because of our ignorance regarding carbon emissions—the seeming defecation of technological progress. The possibility for prosperity, therefore, is in the hands of the people to act on the knowledge of science to solve this issue. The audience, as agents for change, can accept the facts in many ways such as changing their political affiliation, changing the products they buy, or changing the campaigns they support. This narrative of science as moral prosperity relies on the audience to undergo an ideological transformation. Gore's rhetoric is predicated on the idea that material actions, the ways in which we consume energy, should be transformed to better align with the greater good. The definition of this greater good, or moral prosperity, is clear in this context, as in saving the Earth and it's inhabits from the deadly consequences of climate change, while also saving and solidifying the values of scientific progress for the future.

Conclusion

The specific treatments of scientific rhetorics, as I have shown, shape how people engage problems, cultivate solutions, and articulate interpretations of the material world. The specifics of rhetoric provide insight regarding the meaning and significance of science, scientists, and facts—as practice, practitioners, and proofs. From such understandings we can ask: What does a scientist or politician mean when they speak about science? What do scholars mean when they use the terms "science" or "scientific" as descriptive terms? Can "science" be without "authority?" Does "authority" function the same outside of the "scientific" domain? When used within the field of science, between actual scientists, this popular expression characterizes an existing scientific

hierarchy by placing the older, more experienced scientists above the younger, less experienced cohort. This hierarchy generally implies that authority comes with experience and knowledge and, when one has authority in any domain, it is that experience and knowledge that affords them the power to command, to give orders, to enforce obedience, and to influence thought by some degree of sovereignty. When forged through public discourse, this societal hierarchy fortified by scientific authority becomes adoptable and is often spoken for by nonscientists. And yet, what constitutes "science" for nonscientific publics can be just as ambiguous as, for example, the traditions of religion. Therefore, this chapter set out to provide three answers to the question: what is scientific authority and where, how, and under what conditions does it manifest?

As I have shown, these three narrative themes parallel three different conceptions of scientific thinking that scholars have identified in the general study of the rhetoric of science. Each of these narrative themes— science as a story of perpetual discovery, science as reference, and science as an agent of moral prosperity—invites audiences to apprehend how public trust, respect, and ultimately obedience of scientific facts is forged through discourse. Using the documentary format, Gore uses the dramatic function of this medium to advance his persona or personal narrative to bolster the rhetoric of facts and shows the audience how they can and must respond. In this regard, scientific authority relies on a public to adopt and identify with a narrative—one in which particular publics come to accept the symbols of a story and the rules of a hierarchy by and through the discursive function and application of scientific persuasion. In this regard, if a rhetoric of science is the foundation of a particular paradigm, then scientific authority is considered here as the descriptive term for making sense of the social hierarchy. By this standard, both "scientific" and "authority" must be conventionalized through a rhetoric to ensure the social benefits of occupying power, privileged, and an authoritative position.

In the fourteenth century, "authority" in the general sense regarded the "legal validity" of "authoritative doctrine," as opposed to the practices of reason or experience. This designation of validity and legitimacy did not stem from epistemology of doctrine nor did it associate knowledge as epistemic certainty. Rather, the authority of a text or argument stemmed from the ethos of the rhetor. This is made apparent in the etymology of the term "authority:" as in *auctor* and *acteor* from old French meaning "author, originator, and creator; [these derive from] the Latin *auctor* meaning promoter, producer, father, or progenitor."[16] By the end of the fourteenth century, the "author" or rhetor is seen as "the source of authoritative information or opinion," which equates one's authority to their constructed persona rather than the knowledge one acquires over time and by experience. While this may seem archaic, this understanding demonstrates the modern sense of authority as a descriptive term and how its origins may help scholars understand its contemporary usages. While this project does not purpose a complete etymology of the terms comprising the expression, this understanding is beneficial to my critique of scientific authority not as the abundance of knowledge, but rather as a descriptive expression that manifests through particular enactments of the dominant discovery narrative.

At this point, there are probably many questions regarding the use of the term "discovery." You may wonder: why use "discovery" if nothing new was actually found? If human civilization already understood, for example, that the earth was a globe, that we were adrift in the cosmos, and that national boarders were not actually material (unless there is a wall), then what is the rhetorical significance of saying "discovery?" These questions bring forth the concerns of who some consider as the pioneer of rhetoric of science's old settlement: Thomas Kuhn. Kuhn's (1992) well known contribution to this field identifies rhetoric as essential to scientific revolutions. He states, "To

[16] See etymology of authority from http://www.etymonline.com/index.php?term=authority.

discover how scientific revolutions are effected, we shall therefore have to examine not only the impact of nature and of logic, but also the techniques of persuasive argumentation" (p. 94). Whether or not the "discoveries" I have identified in this project constitute reactions that are considered revolutionary is beside the point. Instead, the focus on perpetual discovery narratives is important to understand the rhetorical significance and strategic purpose of this vocabulary common in scientific discourse.

Discoveries have been the common conception advanced by Kuhn's description of paradigm shifts. The "tradition-shattering" (p. 6) achievements of science that take us from "one paradigm to another via revolution" (p. 12) are the result of new ideas that cannot exist in the domain of old paradigms. Science as discovery is not to be thought of as a paradigm in and of itself, but as a descriptive word for the awareness of anomalies that become rhetorically significant in pursuits of scientific persuasion. Discoveries, in this vein, extend our "quest for certainty" (Dewey, 1931) and our collective "Cartesian anxiety" (Bernstein, 1983) as they are contextualized within aesthetically related depictions of dramatized accounts of humans discovering new truths and why those truths are needed.

Similar variations of the discovery motif have been identified throughout the twenty-first century. Leah Ceccarelli (2013) examines the frontier of science metaphor as it is used in the public orations of American scientists. The earliest appearances of the frontier metaphor, Ceccarelli argues, recognized "science as a national salvation at a time of anxiety about the future" (p. 140). When young American men found themselves lacking opportunity for economic growth, the new terrain of science presented a new territory for expansion and exploration. This "new frontier" promised economic prosperity and presented a future for the anxious Americans still suffering from the Great Depression. Ceccarelli claims that, "the metaphor would continue to offer this ameliorating function throughout the twentieth century, creating for American scientist a sense of

endless frontiers of the human mind and of human aspirations" (p. 141). Ceccarelli's description of the frontier metaphor provides a securing symbol of American exceptionalism that appealed to the American people forged through public discourse about science. This conception diverges from discovery merely to highlight the different interests of rhetors employing the metaphor (i.e. Gore discussing climate change verses Mario Cuomo responding to Ronald Regan). Whereas "frontier" differs from "discovery," both stem from a conception of science as epideictic that is rooted in a theory of perspective and metaphors of "conquest" and "adventure," which were prevalent in the twentieth- century. The main aesthetic difference, however, is where "frontier" refers to human expedition and the territory to be explored, "discovery" refers specifically to the scientific fact that resulted from such discovery expedition. Each presents a different frame for thinking about the same conception of science.

Likewise, variations of this perspective have expanded understandings regarding the significance and necessity of rhetorical language in paradigm shifts, mere public engagements, and shifts in public consciousness on scientific matters that arise from discovery narratives. For example, Carol Reeves (1992) examines the rhetoric of scientific discovery accounts surrounding a family of human retroviruses—Human T-cell Leukemia Virus (HTLV)—which cause a rare form of cancer. Reeves' argument focuses on five discovery accounts of HTLV in order to demonstrate how individuals "attempted to maintain rhetorical authority during a period that represents a significant shift in knowledge about a devastating human problem" (p. 322). This attempt to "own" a particular discovery, Reeves finds, is connected to what Joseph Gusfield (1984) calls "ownership" of a public problem, which necessitates a close examination of the cultural, historical, and strategic implications of what is declared a scientific discovery. According to Gusfield, declaring ownership, as each of the HTLV discovery accounts do, "indicates the power to define and describe the problem" (p. 13). Those who "own" a public problem or piece of scientific knowledge are the ones

who possess the authority to make claims and assertions about that problem. "They are looked at and reported to by others anxious for definitions and solutions to the problem" (p. 10). Reeves (1992) suggests that one of the discovery accounts in particular—the account of Dr. Robert Gallo—demonstrated a "determination to maintain the privileges of ownership—to be viewed as the first to discover the cause of AIDS and to have the authority to name, define, and describe the phenomenon and control its public interpretation" (p. 322). This declaration of ownership via discovery can be extended and used in representations about public problems not to become accredited as their literal discoverer, but instead as the source of wisdom, knowledge, and the unquestionable authority to act on and make judgments about public matters.

This scholarly trajectory provides a context and justification for utilizing discovery as a central descriptive term representing a major rhetorical theme within scientific discourse generally. The remembrance of past scientific discoveries reframe science as a story of enlightenment and reconstitute a familiar imagery drawn from general anxieties of the past. While each account of this narrative varies in context—speaking to different people, at different times, and about different things—its general composition includes a few common themes. First, the discoveries of science are seen as the products of progress; they exist as indications that civilization is "progressing" forward, which implicates a whole host of similar descriptive terms such as advancement, revolution, and enlightenment; all of which often follow the adjective "scientific." Second, scientific discoveries are described as facts and represent new knowledge discovered or produced through the scientific method. Scientific facts can be material (the three astronauts seeing the Earth), or representations of the material (Earthrise), or predictions supported by, derived from, or simply connected to the material. Additionally, each form of evidence advances the materialist naturalist view of a knowable universe as central to science as discoverable. Third, science as discovery represents the tension between our "quest for certainty" (Dewey, 1931) and our

"Cartesian anxiety" (Bernstein, 1983). Forth, discoveries implicate ownership, thus granting power and authority to individuals to describe and define public problems. Each of these four general factors are common within science as discovery narratives and provide a critical perspective and vocabulary for unpacking depictions of science in popular representations. Employing this perspective to examine the science as discovery narrative in AIT is essential to understand how the film attempts to persuade the audience about anthropogenic climate change. In this regard, "reference" and "moral prosperity" are but elaborations, developments, and extensions of this more general rhetorical thread of the science as discovery narrative. In the following chapter, I will conclude my project by retelling the story of scientific authority through these three narrative themes and how they can help in contemporary climate change debates.

Chapter Four:

Conclusion

The central conclusion of this thesis project is that AIT creates degrees of scientific authority through the multiple narrative themes employed throughout the film. What is perceived by the public as factual, in this sense, is predicated on the multiple narratives of science that situate each representation of "fact" to a specific socialized milieu. AIT, for example, is a documentary that intended to inform and persuade audiences about the facts of anthropogenic climate change by appealing to certain culturally significant motifs. This rhetorical strategy demonstrates the fallacy of the "information deficit" model approach of scientific persuasion by revealing that the film's persuasive efficacy was a manifestation of it's rhetorical practice and not scientific knowledge. In other words, my examination of AIT demonstrated that people come to trust and are persuaded by scientific facts not because they are true, but because of the power, privilege, and position we ascribe to scientists (and scientific rhetors) in society through particular scientific rhetorics. AIT's rhetorical success is therefore found in its ability to perpetuate existing scientific narratives that overcome certain social obstacles and align symbolically with the cultural embeddedness of the "rhetorical problem" and relate to the values and sensibilities of an audience.

Through the rhetorical examination of AIT, I was able to tease apart two main sources of scientific persuasion: 1) the rhetoric of Gore and 2) the documentary format itself as a brand of rhetoric. Together, each functioned in a manner that advanced the evidence, emotion, and context needed to understand climate change through three reoccurring narrative themes: science as a story

of perpetual discovery, science as reference, and science as an agent of moral prosperity. These themes, I argue, are the sources of scientific authority that manifest through AIT's rhetorical practice. This thesis project, therefore, functions as a critical examination for making sense of how and why AIT made the impact it did within the realm of climate change discourse and why it did not resolve this important and detrimental problem. In this final chapter, I afford my thoughts regarding what AIT was and was not able to do as a persuasive document and how it's success and failure are indicative of the larger genre of public scientific persuasion. In doing so, I demonstrate how AIT aligns more with the epidictic genre of rhetoric, suggesting that its strengths and weaknesses are a result of the value oriented dialectic it advances.

AIT took on the challenge of persuading publics about the issue of climate change in a manner that provides insight regarding how people come to accept facts through particular treatments of scientific persuasion. As I have demonstrated, we can only come to know this social "truth" in a world where "rhetoric operates to assign qualities to the phenomena of life" (Payne, 1989, p. 147). By this I mean that AIT constitutes the reality of this scientific fact only insofar as it advances a rhetoric that constitutes the symbolic authority of one perspective over the failures and incompleteness of another. For the viewers that saw this film as a mere political ploy orchestrated by Gore and the political Left, the representations of scientific facts held no merit. Similar outcomes may have resulted from viewers who did not situate scientific inquiry as the best means for producing reliable knowledge. In other words, these suppositions posit that certain publics were not persuaded because they did not buy into or connect with the perpetuated narratives themes of science advanced in the film.

Since AIT's release in 2006, there have been numerous documentaries on science related subjects that have proven to be indicative of similar rhetorical strategies. Many of which repeat all three of the narrative themes I have identified in this project, including the recently released trailer

for AIT's sequel called *An Inconvenient Sequel: Truth to Power* (2017). My concern, consequently, is that people who remember the qualities of these films and perpetuate their rhetorical strategies think they made an impact merely because they presented the public with credible facts framed through different perspectives. This assumption is misleading as it completely disregards the theory of rhetoric employed in this project. Rhetoric is not predicated on a perspectivist ideal—as in one scientific theory framed through multiple interpretations. Rather, rhetoric is the very ground on which one comes to understand and accept not just facts, but the very idea of science itself placing scientific inquiry at the top of the social hierarchy. Those publics who were not persuaded by the film simply understood the "rhetorical problem" and Gore as the central rhetor from differing rhetorical paradigms (Rainer, 2006; Revkin, 2006; Stevens, 2006; O'hara, 2006). Documentaries such as and similar to AIT must persuade people to adopt a particular understanding of science and its role in society by characterizing authority as a relationship predicated on a narrative of people more so than a narrative of knowledge or nonhuman agents (e.g. technology). In this regard, Gore's climate change rhetoric implicates the Enlightenment story as fundamental to what scientific inquiry is—as an objective "quest for certainty" (Bazerman, 1988) where human beings search the material world for "truths" that will save them from both the forces of nature and themselves. Without accepting this underlying premise of Gore's rhetoric, audience members will not come to accept and act on the facts because they do not align with their epistemological and cultural perspective of science in modern society.

This trend of science documentaries adopting similar rhetorical approaches to AIT (or vice-versa) does not seem to be slowing. Just this week, the well-known popularizer of science, Bill Nye, released his new Netflix series *Bill Nye Saves the World* (2017), which is described by Nye as a science show for adults. While the science as moral prosperity theme seems explicit from the title alone, within the first few minutes of the series' first episode it seems apparent that this veteran of

scientific communication is continuing these common narrative themes and strategies of scientific persuasion in a way that does not persuade so much as it sustains beliefs already aligned with existing underlying assumptions of science. These new attempts at public scientific persuasion bring into line the epidictic genre of rhetoric which often aligns more with literary prose than with scientific argumentation. My view of this popular treatment of epidictic rhetoric is shared with Chaïm Perelman and Lucie Olbrechts-Tyteca (1969) who note that "epidictic oratory forms a central part of the art of persuasion" (p. 49). It differs, however, from the logical appeals of traditional rationalistic theories of argumentation and instead functions to build stronger relationships between all agents of a milieu. In other words, while the rhetorical tendencies of scientific rhetors such as Gore and Nye might not qualify them as avid debaters, their style of argumentation as epidictic rhetoric attempts to increase the degree of adherence to social values. In AIT, the rhetoric of both Gore and the documentary format do not necessarily advance a new argument to novice publics, but rather strengthen the base of the already existing scientific ideology predicated on the "materialist naturalist" biases of knowledge. As a result, AIT's persuasive appeal was greatly limited.

For Aristotle and the many rhetoricians inspired by his teachings, the epidictic genre of rhetoric was an important part of public political and legal debate. Epidictic rhetoric is a value oriented mode of argumentation. It's strength comes from the values and social truths that build a sense of communion around a rhetor and their audience. Rhetors employing this treatment of persuasion are not concerned with proving the legitimacy of their own arguments and the illegitimacy of others, as would be the case with the traditional, rationalistic conception of argumentation. Rather, their focus is on the qualities, ideologies, and values they hold as central to their identity and the identity of their audience. In AIT, Gore clearly demonstrates this genre of rhetoric through the enlightenment narrative. The values associated with scientific progress and

the positive consequences that resulted from it, specifically from the late eighteen-century onward, are the qualities, values, and principals that Gore constantly praises. He credits these values and social truths as the ultimate cause of human advancement and prosperity. In this narrative, those who value scientific inquiry in this way, like Gore, praise science (its practices and methodologies) as the ultimate authority. This praise, however, only represents one side of the epidictic dialectic. According to Perelman and Olbrechts-Tyteca (1969), epidictic rhetoric functions to praise the values of one communion only to blame the values of another for the troubles of society. Politicians do this frequently. A Republican praises the values and actions of their own political party as the reason for American exceptionalism and blames a Democrat or democratic principals for the hardships of the era. In climate change discourse, this dialectic of praise and blame is demonstrated in various ways. For example, there are moments throughout AIT when Gore expresses a political dialectic, as in the values of Democrats are to praise while the blame should fall on the Republicans. At other times, Gore speaks to the scientific temperament as previously discussed, blaming those whom disagree or doubt the scientific consensus supporting anthropogenic climate change and praises those whom agree.

Even though the epidictic genre has less to do with creating adherence around the debate topics themselves, it has everything to do with strengthening an ideological base, often through formal speeches. According to Perelman and Olbrechts-Tyteca (1969), "these speeches were [traditionally] a central attraction at festivals attended periodically by the inhabitants of a [city], and their most visible result was to shed luster on their authors" (p. 48). We often don't think of speeches on political, legal, or scientific matters as mere acts of artistry and flattery, or as events intended to merely shed luster on politicians, government officials, and scientists. Instead, we consider them to be serious attempts at rigorous argumentation—to advance propositions with the intention of winning over the public and any other rhetors who may be participating in a debate.

However, that is not often the case. The epidictic genre of rhetoric is still alive and is practiced often, especially by science communicators. The dramatic case of AIT, I argue, propagates the perspectives of members in a society that defend the traditional scientific appeals and only accept and act on values provided by practicing scientists or popular science communicators. In this regard, AIT's main rhetorical function solidifies the traditions, values, and ideology of the scientific base instead of reaching out to publics with differing perspectives and effectively changing their minds on this matter.

Usually, epidictic discourse is most prone to appeal to a universal, supposedly unquestionable order (Perelman and Olbrechts-Tyteca, 1969). By this I refer to the social hierarchy where individuals trust the values of their ideological base unconditionally. Scientists may rightly respond to this assertion by claiming that the fundamental premise of scientific inquiry is to question all things. The vast majority of scientists that I know personally do share this perspective and apply it rigorously to their brand of thinking. However, the unquestionable order that I speak of here regards the authority of scientists and not solely their practice. This distinction is fundamental to understanding the conclusion of this thesis project. Knowledge is not necessarily the underlying rhetorical issue. Unlike scientists, most members of the public do not see their primary identity as "knowers," but as "actors" acting on behalf of their values and traditions. People do not trust science because they do not trust scientists, and better knowledge will not resolve this mistrust. Rather, this disagreement and mistrust of the public is with the universal, unquestionable hierarchy situating scientists as the oligarchs of society. The rhetorical practices of scientists and science communicators like Gore do not always speak to these discrepancies and instead often produce degrees of mocking rhetorics which, I argue, prescribes to the epidictic genre of rhetoric and is one of the reasons why many scientific messages fail to successfully persuade. We need scientific narratives to create conceptions of authority, understanding, and trust for successful

scientific persuasion. However, these narratives cannot demean and belittle people who disagree, even if their personal beliefs have potentially dangerous consequences. If anything, this should increase our desire to understand how language influences our ability to convey and comprehend information.

The Rhetoric of the Mock

The epistemological dissection of anthropogenic climate change as a scientific fact provides some important details about how Gore, and scientists, know the central problem of this film. The narrative theme of science as reference affords this information by providing the detailed accounts of "scientists doing good science" (Bazerman, 1988), which is considered here as the pursuit of a "materialist ontological inquiry" that permeates through the field of rhetoric of science, technology, and medicine today (Herndl & Cutlip, 2013). As noted, this is repeated frequently in popular science pedagogy with the most recent being Nye's latest Netflix series. The slow, methodical act of demonstrating scientific practice is the main strategy for teaching the fundamentals of biology, chemistry, and physics at a novice level. This approach seems like an obvious and effective strategy for teaching people what scientists actually do to produce facts. However, since the problem facing scientific authority is not a problem of knowledge per se, the epistemological and ontological breakdown of scientific facts through the documentary format often comes across as a treatment of mocking rhetoric. If scientific communicators wish to improve their rhetorical practice, understanding this perspective may help any future persuasive attempts.

Allow me to afford a brief example. When teaching a public about the science of climate change, it is common to begin with an explanation of the theory called the "greenhouse effect." Gore's first demonstration of this rudimentary level science takes place in the first few minutes of the film. As noted in Chapter Two, Gore explains how the sun's radiation enters the Earth's atmosphere in the form of light waves and how much of that radiation is absorbed and warms the

Earth. Not all of this radiation is absorbed. In fact, some of the light is re-radiated back into space in the form of infrared radiation. When the atmosphere is thickened as a result of rising greenhouse gases like carbon dioxide, some of the outgoing infrared radiation is trapped and held inside Earth's atmosphere. Trapping some of the sun's radiation is essential for all life on Earth, keeping the global climate at a comfortable balance within particular ecological boundaries. However, we are at the point where the atmosphere is trapping too much radiation, causing Earth to heat up at an exponential rate. This is the exact same explanation that Nye uses in the opening of his Netflix series. Instead of simply demonstrating this effect using a PowerPoint presentation like Gore, Nye demonstrates this theory by performing an experiment using a small tank of water and an infrared camera. The intentions of both Nye and Gore are clear. Since the "greenhouse effect" is fundamental to the contemporary understanding of climate change, demonstrating this theory is essential to comprehending the inner workings of this scientific problem. However, these presentations repeat the "materialist naturalist" assumptions of science through the epidictic genre of rhetoric, which does not persuade but rather mocks those who may be initially skeptical of this issue; the very people rhetors such as Gore and Nye set out to persuade and reason with.

For audience members whom already align ideologically with these narratives of science and their corresponding hierarchies of scientific authority, these presentations of scientific facts are used to reinforce the existing stereotype of climate skeptics—that they are dumb, uneducated, and ignorant. The slow, sarcastic explanations of the "greenhouse effect," for example, functions as a brand of epidictic rhetoric because of how it advances the value-oriented dialectic between praise and blame. Utilizing all of the rhetorical strategies addressed in Chapter Two regarding Gore's rhetorical practice, the praising of scientific leaders is often explicitly stated in the multiple analogies shared with the audience about those brave scientists/ discovers who brought the "truth" to human civilization. This rhetorical theme is similar to the parables of religious prophets relaying the word

of God, as seen in the science as moral prosperity narrative. The numerous examples of how scientific facts changed the ways in which human beings came to understand the external world were part of Gore's rhetorical strategy, but functioned more to praise the accomplishments of science in a manner that fails to address the underlying rhetorical obstacles that need to be questioned. While I firmly agree that somewhere within scientific persuasion rhetors should connect the accomplishments of science to the justifications supporting and advancing scientific practice in society, I argue that in this epidictic dialectic, praise merely foregrounds the blame placed on the science skeptic. Mocking rhetoric, in this sense, presupposes the counterarguments and skepticism of those unwilling to accept the facts of anthropogenic climate change. By placing blame on these particular publics for the failures of society due to their assumed ignorance, the science as reference theme specifically perpetuates a mocking rhetoric that merely reinforces the values of the scientific base at the expense of the "other."

There are many reasons for this. First, ideologies are constantly reinforced by similar treatments of rhetoric. It is often apparent that rhetors have greater success appealing to their own people or those whom share ideological commitments rather than effectively persuading others to accept and act on their perspectives. The current American political climate is a fitting example of this. Many political commentators and public intellectuals on both sides of the political spectrum constantly express similar observations regarding the highly polarized American political system. Especially with popular expressions such as "alternative facts" and the "post-truth era" on the rise, it seems like many people are using similar epidictic treatments of mocking rhetorics because the disconnect between differing perspectives seems too vast to bridge. Second, this observation reveals in some sense the frustration and ignorance of the scientific base when persuading others of scientific facts. One of the most popular political commentators expressing this perspective is

Bill Maher, host of the popular late night HBO show *Real Time With Bill Maher*. For example, in one of his more recent episodes Maher noted,

> "Liberals have to stop trying to win over Trump voters with facts. You're wasting your breath and you'll need it because the air isn't getting any better… The point is, Trump supporters are not changing their minds because the problem is not in their heads, its lower. Its emotional. Stop clinging to the false hope that if we just share this Facebook story about the time he tried to have lunch with Frederick Douglas or high-fived Stevie Wonder or criticized Obama for playing golf and now he plays more golf, you're preaching to the yoga studio…His people know [and] they don't care. He could have Anne Frank's skeleton in his closet [and] they'd all vote for him again. The question is: why" (Maher, 2017).

Clearly Maher is a left-leaning, political satirist who frequently criticizes and demeans the right, especially when discussing climate change and other science related topics. His political ideology, however, is well suited to support my earlier claim regarding degrees of mocking rhetoric when talking about the persuasion of facts. In the above example, Maher first addresses the rhetorical problem that I have established in this thesis project: that facts alone do not always persuade people. Maher's following claims are all observable occurrences that have taken place on camera and can be re-watched at any time online: the statements about Fredrick Douglas, the Stevie Wonder incident, and the claims about former President Barack Obama's golfing regiment. Empirically these things happened and can be proven, but what is of particular interest is how Maher uses these facts to advance the initial "rhetorical problem" by mocking and placing blame on a particular ideological public. The tone and stylistic qualities of Maher's statements are clear indications of this and are similar to the mocking moments of Gore throughout AIT. Each example of Gore, Nye, and Maher advance facts through a rhetoric that increases the polarization of these different perspectives. This, in turn, only makes effective scientific persuasion more difficult because of how it constantly separates the commonality among people, making it extremely difficult to create the necessary elements of rhetoric: consubstantiality, identification, and so on. Science cannot be a liberal topic or be characterized as a belief with a "progressive" agenda. In order to build trust, scientific authority must transcend both political parties and multiple

ideological commitments, and create messages that build off of the existing ways in which we think about science without mocking those who disagree.

By this accord, AIT is halfway there. Appealing to the existing narratives of science was detrimental to the manifestation of scientific authority. Through the combination of Gore's rhetorical practices and the preexisting narratives of science, AIT develops a common language of human events that reflect the communicative necessity that scholars such as Burke (1966; 1969a; 1969b) build on in his theories of rhetoric. Appealing to Gore's history, a history of scientific practice, and a history of science in society created multiple narratives that provided context and legitimacy to science, Gore, and his audience. However, since the film functioned more as a form of epidictic rhetoric, it seems that AIT increased adherence within the preexisting scientific base and did less persuading of the climate skeptics and deniers. If science communicators are serious about reaching these groups of people, then we have to remember the fundamental elements of rhetoric and discard the perspective that the divide among people is too vast to bridge.

References:

Antilla, L. (2005). Climate of scepticism: US newspaper coverage of the science of climate change. *Global environmental change*, *15*(4), 338-352.

Aristotle (trans. W. Rhy Roberts). (1954). *Rhetoric*. New York: The Modern Library.

Austin, J. L. (1962). *How to do things with words*. Cambridge, *MA:* Harvard *UP*.

Bauer, H. H. (1994). *Scientific literacy and the myth of the scientific method*. University of Illinois Press.

Bazerman, C. (1988). *Shaping written knowledge: The genre and activity of the experimental article in science* (Vol. 356). Madison: University of Wisconsin Press.

Bennett, J., Cheah, P., Orlie, M. A., & Grosz, E. (2010). *New materialisms: Ontology, agency, and politics*. D. Coole, & S. Frost (Eds.). Duke University Press.

Benson, T. W. (1980). The rhetorical structure of Frederick Wiseman's High School. *Communication Monographs*, 47, 233-261.

Benson, T. W. (1985). The rhetorical structure of Frederick Wiseman's Primate. *Quarterly Journal of Speech*, 71, 204-217.

Benson, T. W. & Anderson, C. (2002). *Reality fictions. The films of Frederick Wiseman*. Second edition. Carbondale and Edwardsville: Southern Illinois University Press.

Berlin, I. (1956) *The age of enlightenment: the eighteenth century philosophers*. The New American Library. New York and Toronto.

Betsill, M., & Bulkeley, H. (2007). Looking back and thinking ahead: a decade of cities and climate change research. *Local environment*, *12*(5), 447-456.

Bitzer, L. F. (1992). The rhetorical situation. *Philosophy & rhetoric*, 1-14.

Bitzer, L. F. (1999). The rhetorical situation. *Contemporary rhetorical theory: A reader*, 217-225.

Blair, C. (1999). Contemporary US memorial sites as exemplars of rhetoric's materiality. *Rhetorical bodies*, *17*.

Burke, K. (1963). Definition of man. *The Hudson Review*, 16(4), 491-514.

Burke, K. (1966). *Language as symbolic action: Essays on life, literature, and method*. Univ of California Press.

Burke, K. (1969a). *A rhetoric of motives* (Vol. 111). Univ of California Press.

Burke, K. (1969b). *A grammar of motives*. Univ of California Press.

Campbell, K. K. (1972). Critiques of Contemporary Rhetoric. Wadsworth Pub Co. [Belmont, CA].

Campbell, K. K. (1982). The rhetorical act. Wadsworth Pub Co. [Belmont, CA].

Caron, D. J., & Brown, R. (2011). The documentary moment in the digital age: establishing new value propositions for public memory. *Archivaria*, 71.

Ceccarelli, L. (2011). Manufactured scientific controversy: Science, rhetoric, and public debate. *Rhetoric & Public Affairs*, *14*(2), 195-228.

Ceccarelli, L. (2013). *On the frontier of science: An American rhetoric of exploration and exploitation*. MSU Press.

Chow, D. (May 6, 2017) Nike's attempt to beat 2-hour marathon falls just short. Live Science. Received from http://www.livescience.com.

Collins, H. M., & Evans, R. (2002). The third wave of science studies studies of expertise and experience. *Social studies of science*, 32(2), 235-296.

Cook, J., Oreskes, N., Doran, P. T., Anderegg, W. R., Verheggen, B., Maibach, E. W., & Nuccitelli, D. (2016). Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. *Environmental Research Letters*, *11*(4), 048002.

Coole, D., & Frost, S. (2010). Introducing the new materialisms. *New materialisms: Ontology, agency, and politics*, 1-43.

Condit, C. M. (2010). Public understandings of genetics and health. *Clinical genetics*, *77*(1), 1-9.

Condit, C. M., Parrott, R. L., Bates, B. R., Bevan, J., & Achter, P. J. (2004a). Exploration of the impact of messages about genes and race on lay attitudes. *Clinical genetics*, *66*(5), 402-408.

Condit, C. M., Parrott, R. L., Harris, T. M., Lynch, J., & Dubriwny, T. (2004b). The role of "genetics" in popular understandings of race in the United States. *Public Understanding of Science*, *13*(3), 249-272.

Conquergood, D. (1995). Of caravans and carnivals: Performance studies in motion. *TDR (1988)*, *39*(4), 137-141.

Crowley, S. (2006) *Towards a Civil Discourse: Rhetoric and Fundamentalism*. Pittsburgh, PA: University of Pittsburgh Press.

Darley, A. (2003). Simulating natural history: Walking with Dinosaurs as hyper-real edutainment. *Science as culture*, 12(2), 227-256.

Dawkins, R. (1986). *The blind watchmaker: Why the evidence of evolution reveals a universe without design*. WW Norton & Company.

Dawkins, R. (1992) *Progress*. 263-272. Keller, E & Lloyd, E (1992) *Keywords in Evolutionary Biology*. Harvard University Press.

Dawkins, R. (2006). *The selfish gene*. Oxford University Press.

Dawkins, R. (2011). The tyranny of the discontinuous mind. *New Statesman*, *19*, 54-57.

Dear, P. (1985) Totius in Verba: Rhetoric and authority in the early royal society. *The University of Chicago Press on behalf of History of Science Society*. Isis, 76(2), 144-161.

Dewey, J. (1910). Science as subject-matter and as method. *Science*, 121-127.

Dewey, J. (1916). Progress. *The International Journal of Ethics*, *26*(3), 311-322.

Dewey, J. (1927). *The Public and Its Problems*. Henry Holt and Company. Swallow Press and Ohio University Press.

Dewey, J. (1931). *Science and society*. Na.

Dewey, J. (1933). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. DC Heath and Company.

Dewey, J. (2008). *The Later Works of John Dewey, Volume 7, 1925-1953: 1932, Ethics* (Vol. 7). SIU Press.

Dickson, D. (2005). The case for a 'deficit model' of science communication. *SciDev. net*, *27*.

Edwards, P. N. (2010). *A vast machine: Computer models, climate data, and the politics of global warming*. MIT Press.

Eubanks, P. (2015). *The troubled rhetoric and communication of climate change: The argumentative situation*. Routledge.

Fahnestock, J. (1999). *Rhetorical figures in science*. Oxford University Press.

Farrell, T. B. (1976). Knowledge, consensus, and rhetorical theory. *Quarterly Journal of Speech*, *62*(1), 1-14.

Fleming, D. (2008) *City of Rhetoric: Revitalizing the Public Sphere in Metropolitan America*. Albany: SUNY Press.

Gay, P. (1959) *The Party of Humanity*. Princeton.

Gay, P. (1968). The Enlightenment. *The Comparative Approach in American History*, 33-46.

Glassberg, D. (1996). Public history and the study of memory. *The Public Historian*, 18(2), 7-23.

Golinski, J. (2008). *Making Natural Knowledge: Constructivism and the History of Science, with a new Preface*. University of Chicago Press.

Goodnight, G. T. (2005) Science and technology controversy: a rationale for inquiry. *Argumentation and Advocacy*. 42 (1).

Gore, A. (1992). *Earth in the balance: Ecology and the human spirit*. Boston, MA.

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. Rodale.

Graham, S. S., & Herndl, C. (2013). Multiple ontologies in pain management: Toward a postplural rhetoric of science. *Technical Communication Quarterly*, 22(2), 103-125.

Greene, R. W. (1998). Another materialist rhetoric. *Critical Studies in Media Communication*, *15*(1), 21-40.

Gronbeck, B. (1977). "Celluloid Rhetoric: On Genres of Documentary." In *Form and Genre: Shaping Rhetorical Action*, edited by Karlyn Kohrs Campbell and Kathleen Hall Jamieson, 139–161. Falls Church, VA: Speech Communication Association.

Guggenheim, D. (2006) *An Inconvenient Truth*. United States. Paramount.

Gusfield, J. R. (1984). *The culture of public problems: Drinking-driving and the symbolic order*. University of Chicago Press.

Habermas, J. (1991). *The structural transformation of the public sphere: An inquiry into a category of bourgeois society*. MIT press.

Hall, S., Critcher, C., Jefferson, T., Clarke, J., & Roberts, B. (2013). *Policing the crisis: Mugging, the state and law and order*. Palgrave Macmillan.

Hamblyn, R. (2009). The whistleblower and the canary: rhetorical constructions of climate change. *Journal of Historical Geography*, *35*(2), 223-236.

Haraway, D. J. (1997). *Modest− Witness@ Second− Millennium. FemaleMan− Meets− OncoMouse: Feminism and Technoscience*. Psychology Press.

Harris, R. A. (1997). Landmark essays on rhetoric of science case studies.

Harris, S. (2010). *The moral landscape: How science can determine human values*. Simon and Schuster.

Hart, R. P. (1990). Modern rhetorical criticism. Scott Foresman & Company.

Hartmann, B. (2010). Rethinking climate refugees and climate conflict: rhetoric, reality and the politics of policy discourse. *Journal of International Development*, *22*(2), 233-246.

Hauser, G. A. (1999). *Vernacular voices: The rhetoric of publics and public spheres*. Univ of South Carolina Press.

Herndl, C. G., & Cutlip, L. L. (2013). " How Can We Act?" A Praxiographical Program for the Rhetoric of Technology, Science, and Medicine. *Poroi*, *9*(1), 9.

Hulme, M. (2009). *Why we disagree about climate change: Understanding controversy, inaction and opportunity*. Cambridge University Press.

Ifill, Gwen. (10 July 1992). The 1992 Campaign: Democrats; Clinton Selects Senator Gore of Tennessee as Running Mate. *The New York Times* [Little Rock, Ark.] Received from http://www.nytimes.com

Jasinski, J. (2001). The status of theory and method in rhetorical criticism. *Western Journal of Communication* (includes Communication Reports), 65(3), 249-270.

Jeffries, M. (2003). BBC natural history versus science paradigms. *Science as culture*. 12(4), 527-545.

Johnson, L. (2009). (Environmental) rhetorics of tempered apocalypticism in An Inconvenient Truth. *Rhetoric Review*, *28*(1), 29-46.

Juel, H. (2006). Defining documentary film. *POV A Danish Journal of Film Studies*, *22*, 5-15.

Kaboub, F. (2008). Positivist paradigm. *Leong, Encyclopedia of Counselling, Thousand Oaks*, 786-787.

Kaku, M. (2011) *Physics of the future*. Anchor Books.

Kaku, M. (2014) *The future of the mind: the scientific quest to understand, enhance, and empower the mind*. Anchor Books.

Kaes, A. (1990). History and Film: Public Memory in the Age of Electronic Dissemination. *History and Memory*, *2*(1), 111-129.

Keller, E. F. (1995). *Refiguring life: Metaphors of twentieth-century biology*. Columbia University Press.

Kelly, M. (7 August 1992). The 1992 Campaign: Campaign Memo; Democrat's Road Tour: Selling the Ticket Retail. *The New York Times* [Cedar Rapids, Iowa]. Received from http://www.nytimes.com

Kreutzer, D. (2016). An Inconvenient Truth: Liberal Climate Inquisition Can't Explain Past Temperature Changes. Received from http://www.cns.com

Kuhn, T. S. (1992). The trouble with the historical philosophy of science.

Kuhn, T. S (2012). *Structure of Scientific Revolutions*. The University of Chicago Press. Vol 4.

Kurz T, Augoustinos M, & Crabb S. (2010), Contesting the 'national interest' and maintaining 'our lifestyle': A discursive analysis of political rhetoric around climate change. *British Journal of Social Psychology*, 49(3)

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Harvard university press.

Latour, B. (1999). *Pandora's hope: essays on the reality of science studies*. Harvard University Press.

Latour, B. (2004a). *Politics of nature*. Harvard University Press.

Latour, B. (2004b). Why has critique run out of steam? From matters of fact to matters of concern. *Critical inquiry*. 30(2), 225-248.

Latour, B. (2007). *Reassembling the social*. Hampshire: Oxford University Press.

Latour, B. (2012). *We have never been modern*. Harvard University Press.

Lawrence, D., & Vandecar, K. (2015). Effects of tropical deforestation on climate and agriculture. *Nature Climate Change*, *5*(1), 27-36.

Lessl, T. M. (1985). Science and the sacred cosmos: The ideological rhetoric of Carl Sagan. *Quarterly Journal of Speech*, *71*(2), 175-187.

Majdik, Z. P., & Keith, W. M. (2011). Expertise as argument: Authority, democracy, and problem-solving. *Argumentation*, *25*(3), 371.

Mellor, F. (2009). The politics of accuracy in judging global warming films. *Environmental Communication*, 3(2), 134-150.

Miller, J. (April 6, 2017) Al Gore's Lincoln Lie. *National Review*. Received from http://www.nationalreview.com.

Miller, S. (2017) Weight-loss procedure makes stomach into 'accordion' without surgery. Live Science. Received from http://www.livescience.com.

Mol, A. (2002). *The body multiple: Ontology in medical practice*. Duke University Press.

Myers, G. (1990). The social construction of popular science: The narrative of science and the narrative of nature. *Writing biology: Texts in the social construction of scientific knowledge*, 141-192.

Nagel, T. (2012). *Mind and cosmos: why the materialist neo-Darwinian conception of nature is almost certainly false*. Oxford University Press.

Nichols, B. (1991). *Representing reality: Issues and concepts in documentary*. Bloomington, IN: Indiana University Press.

Nichols, B. (2001). *Introduction to documentary*. Bloomington, IN: Indiana University Press.

Nielsen-Gammon, J. W. (2007). An Inconvenient Truth: the scientific argument. *GeoJournal*, *70*(1), 21-26.

Nitecki, M. H. (1988) *Evolutionary Progress*. Chicago: University of Chicago Press.

Northrup, D. (Ed.). (1994). *The Atlantic slave trade*. DC Heath.

Nye, B. (2016) *National Geographic's Explorer: Bill Nye's Global Meltdown*. United States. National Geographic.

Nye, B. (2017) *Bill Nye saves the world*. United States. Netflix.

O'hara, H. (2006) (Last updated 2016) An Inconvenient Truth Review. Empire. Received from http://www.empireonline.com.

Olson, K. M. (2007). Rhetorical leadership and transferable lessons for successful social advocacy in Al Gore's An Inconvenient Truth. *Argumentation and Advocacy*, *44*(2), 90-110.

Payne, D. (1997) Dramatistic Criticism. Modern Rhetorical Criticism, 2.

Payne, D. (1989). *Coping with failure: The therapeutic uses of rhetoric*. University of South Carolina Press.

Pepper, S. C. (1969). Concept and quality: A world hypothesis. Pg. 3

Perelman, C., & Olbrechts-Tyteca, L. (1969). *The New Rhetoric* [trans. John Wilkinson and Purcell Weaver]. Notre Dame, Ind.: University of Notre Dame Press.

Pickering, A., & Flanagan, O. (1995). Concepts and the mangle of practice: constructing quaternions. The moment of truth on Dublin bridge: a response to Andrew Pickering. Explanation, agency and metaphysics: a reply to Owen Flanagan. *The South Atlantic quarterly*, *94*(2), 417-480.

Rai, C. (2016). *Democracy's lot: Rhetoric, publics, and the places of invention* (2nd ed.). Tuscaloosa, AL: University Alabama Press.

Raijmakers, B., Gaver, W. W., & Bishay, J. (2006, June). Design documentaries: inspiring design research through documentary film. *In Proceedings of the 6th conference on Designing Interactive systems* (pp. 229-238). ACM.

Rainer, P. (May 26, 2006) Al Gore's global warming (movie review). The Christian Science Monitor. Received from http://csmonitor.com.

Reeves, C. (1992). Owning a virus: The rhetoric of scientific discovery accounts. *Rhetoric Review*, *10*(2), 321-336.

Revelle, R. (1982). Carbon Dioxide and World Climate. *Scientific American*. 247(2), 35-43.

Revkin, A. (May 22, 2006) 'An Inconvenient Truth': Al Gore's fight against global warming. The New York Times. Received from http://nytimes.com.

Rice, J. E. (2012) *Distant Publics: Development Rhetoric and the Subject of Crisis*. Pittsburgh: U of Pittsburgh P.

Rosteck, T., & Frentz, T. S. (2009). Myth and multiple readings in environmental rhetoric: The case of An Inconvenient Truth. *Quarterly Journal of Speech*. 95(1), 1-19.

Rushing, J. H., & Frentz, T. S. (1989). The Frankenstein myth in contemporary cinema. *Critical Studies in Media Communication*, *6*(1), 61-80.

Sagan, C. (1997). *Pale blue dot: a vision of the human future in space*. Random House Digital, Inc.

San Deogracias, J. C., & Mateos-Pérez, J. (2013). Thinking about television audiences: Entertainment and reconstruction in nature documentaries. *European Journal of Communication*, 28(5), 570-583.

Sankar, P., Cho, M. K., Condit, C. M., Hunt, L. M., Koenig, B., Marshall, P., ... & Spicer, P. (2004). Genetic research and health disparities. *Jama*, *291*(24), 2985-2989.

Schmidt, J. (2003) Inventing the enlightenment: Anti-Jacobins, British Hegelians, and the Oxford English Dictionary. *Journal of the History of Ideas*. 64(3), 421-443.

Schoen, S.W. (2012). The Rhetoric of Evidence in Recent Documentary Film and Video. *Graduate Theses and Dissertations*. Received from http://scholarcommons.usf.edu/etd/4399

Scott, R. L., & Smith, D. K. (1969). The rhetoric of confrontation. *Quarterly Journal of Speech*, *55*(1), 1-8.

Segal, J. (2005). *Health and the rhetoric of medicine*. SIU Press.

Selzer, J., & Crowley, S. (1999). *Rhetorical bodies*. Univ of Wisconsin Press.

Skinner, B. F. (1971). Beyond freedom and dignity. *Psychology Today*, *5*(3), 37.

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social studies of science*, *19*(3), 387-420.

Stevens, D. (2006) (Movie Review). *The New York Times*. Received from http://ww.nytimes.com.

Sullivan, D. L. (1991). The epideictic rhetoric of science. *Journal of Business and Technical Communication*, *5*(3), 229-245.

Suro, R. (31 October 1992) The 1992 Campaign: Al Gore; Gore and Clinton Share Language of Their Own. *The New York Times* [Manchester, N.H.]. Received from http://www.nytimes.com

Tannock, S. (1995). Nostalgia critique. *Cultural Studies*, *9*(3), 453-464.

Van Dijck, J. (2006). Picturizing science The science documentary as multimedia spectacle. *International Journal of Cultural Studies*, *9*(1), 5-24.

Williams, E. (1944) *Capitalism and slavery*. University of North Carolina Press Books.

Wilson, G., & Herndl, C. G. (2007). Boundary objects as rhetorical exigence: Knowledge mapping and interdisciplinary cooperation at the Los Alamos National Laboratory. *Journal of Business and Technical Communication*, *21*(2), 129-154.

Wynne, B. (2003). Seasick on the third wave? Subverting the hegemony of propositionalism: Response to Collins & Evans (2002). *Social studies of science*, *33*(3), 401-417.