A RHETORICAL HISTORY OF 350.ORG'S INTERNATIONAL DAY OF CLIMATE ACTION

by

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Submitted to the Graduate Faculty of
AddRan College of Liberal Arts
Texas Christian University
in partial fulfillment of requirements
for the degree of

Doctor of Philosophy

August 2014

DEDICATION AND ACKNOWLEDGMENTS

Dedication

To Jessica, Mary, and Emily, whose *Onward and Upward!* sustained me.

Acknowledgments

To be taught by the Rhetoric and Composition faculty at Texas Christian University is a privilege indeed. I am especially grateful for the generosity, professionalism, and scholarly counsel provided by my dissertation committee (Ann L. George, Richard Leo Enos, and Carrie S. Leverenz) whose affirmation of my research and writing inspired me to work beyond my expectations. I also thank my fourth reader, M. Jimmie Killingsworth, whose original work in environmental rhetoric showed me a path forward.

To Ann George I owe special thanks. Throughout coursework, exam preparation, and writing group meetings, Ann's guidance has been invaluable. Her patient reading of early fragments encouraged me to write on; her invitation for me to talk aloud revealed what I was really trying to say; her blue arrows showed me the beauty of structure. I am grateful for her leadership and her friendship.

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Abbreviations

In this dissertation, I use the following abbreviations for Kenneth Burke's major works:

CS *Counter-Statement*

ACR *Auscultation, Creation, Revision*

P&C *Permanence and Change*

AtH *Attitudes toward History*

GM *A Grammar of Motives*

RM *A Rhetoric of Motives*

LSA *Language as Symbolic Action*

Introduction: Wait til It's Bad

> *In a time of great crisis, such as a shipwreck the conduct of all persons involved in that crisis could be expected to manifest in some way the motivating influence of the crisis.*
> Kenneth Burke, *Dramatism*

If everyone with eyes and ears believed the warnings about global warming, derricks would stop pumping, West Virginia's coalmines would be grassy knolls, and the BP oil spill would never have happened. A crisis such as the end of human civilization as we have grown accustomed to it—NASA scientist James Hansen's prophecy—would by itself be capable of motivating a radical change in human behavior, namely the abandonment of the carbon culture, in favor of sustainable energy sources. Hansen first declared that if the number of particles of carbon in the atmosphere exceeded 350 parts per million, the consequent greenhouse effect would accelerate the melting of the ice caps so that coastal lands disappear while the Central United States grain belt becomes a desert. Coupled with a new period of extinction that would decimate animal species around the globe, the unsettling of populations from flooded coasts alone would likely cause legal and social upheavals that current governments around the world are ill prepared to handle. Surely this is a crisis for an international coalition to tackle, a complex situation tailor made for the United Nations.

However, in spite of Hansen's warning and those of high-profile environmental activist Vice President Al Gore, and less well known advocates such as Bill McKibben, the United Nations has not been able to secure international support for an agreement among member nations to reduce carbon emissions. Many environmental advocates anticipated the UN Framework on Climate Change Conference (UNFCCC) in

Copenhagen, Denmark, in December 2009, as the opportunity most likely to produce an emissions reduction treaty that the United States, China, India, and other major emitters of carbon would endorse. In anticipation of the UNFCCC, environmental advocacy groups sought to increase pressure on their nations' delegations, but "Hopenhagen" was a failure: the Kyoto Protocol was not significantly improved; no new agreement was forthcoming. The United States "took note of" the wishes of the parties to the Conference, which meant merely to acknowledge that something happened, a nod and an "uh-huh" in the approximate direction of the event (Revkin and Broder, "U.N. Climate Talks").

If an impending crisis does not motivate change, how are publics persuaded to change their behavior in order to avoid a crisis in the best case, or at least, to mitigate its effects sooner, rather than later? In this study, I construct a rhetorical history of the efforts of the environmental advocacy group *350.org* to persuade potential adherents to reduce their carbon footprint and to pressure their legislators and representatives at the Copenhagen summit to create regulations limiting carbon emissions. In a unique configuration of Kenneth Burke's theories of circumference, terminology, piety, and trained incapacity, I argue that the words and images used by *350.org* founder Bill McKibben work simultaneously to circumscribe the limited ideological territory to be inhabited by adherents to the *350.org* position, while also urging the international expansion of *350.org*'s influence. In addition, I analyze a powerful counter-argument constructed by a faction denying the existence of climate change. In both cases, the vocabulary with which they define their positions and identify adherents and

opponents balks action in ways that Burke anticipated throughout the twentieth century.

The Research Questions

Central to the debate about the environment is the language chosen by environmental advocacy groups to characterize the nature and extent of the crisis and to communicate those perceptions to multiple audiences in an effort to forestall irremediable catastrophe. The current difficulties for environmental advocacy groups are twofold: First, to convince the public that there is a crisis, that indeed planet Earth as a ship in space will suffer an imminent catastrophic wreck if human behavior does not change; and second, to communicate viable alternatives to current dangerous practices in order to avert the environmental catastrophe. Both are rhetorical problems that comprise identifying audiences and crafting persuasive messages, in overlapping scenes set within the larger physical scene of a vulnerable planet. In this rhetorical history, I explore these two broad questions: Out of what rhetorical context do participants in one contemporary environmental social movement construct an argument to define and address the crisis of climate change? Through what means does the leader seek to influence digital and embodied audiences to change their beliefs and behaviors toward fossil fuels, given powerful forces that encourage maintenance of the status quo?

In addition, theories of social movement rhetoric provide approaches to a number of more specific questions appropriate to a rhetorical history: Must a social movement leader be an expert in rhetorical strategies, as suggested by Leland Griffin and Harold A. Simons? What do leadership and expertise look like in the online world?

If the concepts of charisma and effective oratory have changed, how much does oratorical power matter to a digital audience whose values the orator attempts to change, questions explored by Dale Sullivan, Cynthia Sheard, and Gerard Hauser? To what extent do effective social movement leaders need both oratorical and online expertise to reach a digital public, as argued by Gerard Hauser and Susan Whalen? I respond to these questions in my examination of Bill McKibben's role as a leader of *350.org* and the group's digital identity, and, in doing so, I contribute significant insight into methods for examining social movement rhetoric in the digital era.

The Conversation

The environmental advocacy organization—*350.org*—seeks to convince the public that rapid climate change is an imminent crisis, that climate change is caused in part by human behavior, and that changes in human behavior may forestall the catastrophe. To create a groundswell of public pressure, *350.org*'s founder Bill McKibben organized the International Day of Climate Action (IDCA) on October 24, 2009, so that political leaders assembling in Copenhagen, Denmark in December 2009 for the United Nations Framework Convention on Climate Change (UNFCCC) would agree to reduce carbon emissions worldwide.

This rhetorical history of *350.org*'s International Day of Climate Action demonstrates both the shift in social movement rhetoric that accommodates a digital public and the motivating power of terminology as theorized by Kenneth Burke. In particular, I will examine the ways McKibben and other agents use scientific terms within different scenes to elicit support from multiple audiences. The breadth of the mass media's claim about the IDCA's international participation—*The Nation* called it

"the most widespread one-day political protest in history"—argues for the appropriateness of the choice to make *350.org* and the International Day of Climate Action the focus of this study.

My dissertation responds to scholarship in two areas: environmental rhetoric as a subdiscipline of social movement rhetoric, and Burke studies. I ground my study in rhetorical theory rather than in communications, journalism, or literary criticism. Although anthologies by Carl G. Herndl and Stuart C. Brown, James G. Cantrill and Christine L. Oravec, and Craig Waddell provide essential overviews of environmental rhetoric spanning fifteen years, none uses Burke as the primary theoretical lens, as I have chosen to do. A seminal contribution to the study of environmental rhetoric by M. Jimmie Killingsworth and Jacqueline S. Palmer described as "ecospeak" that strident and divisive discourse employed by many environmental advocates, a stridency Greg Garrard and Stewart Brand both identify in Bill McKibben's work. Killingsworth and Palmer's study "The Discourse of 'Environmentalist Hysteria'" argues that apocalyptic rhetoric "meets well the need to build and support communities of advocacy, [but] it fails to meet the continuing need for dialogue, deliberation, and consensus-building—the need to keep the other in the foreground and to adjust one's position accordingly" (15). I will explore the extent to which Bill McKibben's use of scientific terminology defines his appeals to multiple audiences in order to build and support a community of advocacy, which—while digital, international, and at once remote and immediate—will none the less effect political change; or if, instead, as critics have claimed, McKibben's rhetoric falls into a stridency that thwarts the necessary consensus-building toward policy change.

As is true of many scholars of environmental rhetoric, Killingsworth and Palmer publish in communication journals as well as those typically associated with rhetoric. Nancy Walters Coppola describes Killingsworth and Palmer's model of attitudes toward nature as a continuum that includes nature as object, resource, and spirit (12). However, neither their model nor Coppola's work as a technical communicator to "span boundaries, balance persuasion and ethics, and affect meaning" (9) goes far enough in analyzing how humans are motivated to change their allegiance from one symbol of authority to another. I will apply Burke's pentadic model of human motivation to fill that gap.

My study shares certain features with others in environmental rhetoric, a subdiscipline of social movement rhetoric, but remains distinctive in the ways I describe below. A number of studies for *Environmental Communication* and *Quarterly Journal of Speech* address environmental rhetoric by focusing on the social or biological implications in the discourse of a particular local dispute: Jane B. Rowe analyzes the synecdotic reduction of a complex environmental problem to the salvation of one species of fish, the shad. Steven Schwarze traces the rhetorical positions of labor, management, and community members in the controversy over asbestos contamination in Libby, Montana. Tarla Rai Peterson treats the media coverage of the Step-It-Up campaign about climate change, a campaign organized by Bill McKibben and his students in Vermont, as an opportunity for scholars to participate as activists and analyze their own rhetorical roles. All of these scholars, as stated explicitly by Robert Cox—the author of the lead article for the inaugural issue of *Environmental Communication*—take the position that environmental communication has an ethical

duty to constrain or enable society to respond to environmental challenges, essentially an argument for the disciplines of social science and communication, emphasizing the response of the audience rather than the form, format and delivery of the argument (Vanessa Beasley 588). My study treats not the social change sought by environmental advocacy groups, but the arguments made in selected scenes of the climate change debate.

My dissertation answers Marlia Banning's call for a way to respond to the endless debunking and reduction to public rubble of the scientific evidence on climate change, resulting in, as Banning calls it, "an incomprehensible blend of ideology, fact, fantasy, faith, and fiction" ("Exigency" 656). She asks, "Is there a way to reconstitute this highly public rubble—via the precautionary principle, human time, deep time, the assemblage of actors, apparatuses, and events, or some other route—to expand our field of action?" (656). Rather than engaging in the debate about whether the planet is warming, Banning asks that scholars foreground questions on "the resources, motives, methods, and authority behind efforts to shape public opinion on global warming" (656). My work responds to Banning's call by constructing for the first time the links among these four elements of selected rhetorical scenes of the climate change debate: the terminological resources of environmental advocates and their opponents; the motives as revealed and promoted by their chosen vocabularies, especially in their emotional undertones; the persuasive methods each faction employs; and the warrants behind each faction's terms that authorize their positions.

In this study, I argue that the emotional values underlying terminology contribute to or forestall action on climate change. Banning—and James Risbey before

her—acknowledges that alarm is an attribute of environmental discourse, often warranted, but nonetheless subject to criticism. If, for example, a scientist such as James Hansen characterizes the current global environment as an *unprecedented catastrophe*, he and other climate scientists may feel that the alarm is warranted by the data on which they draw, especially since action to stop the rise in carbon emissions and to remediate the damage at hand are the goals of their characterization. Skeptics about climate change, on the other hand, criticize such a term as emotionally manipulative and uncalled for. Nonetheless, one rarely sees complaints about scientists' use of the term *mild*, for example, as value-loaded language to describe climate change impacts (Risbey 32). Risbey's point about the asymmetry in criticism of the terms is that value-loaded language is common to scientific reports and is not necessarily inflammatory. Even so, Daniel O'Keefe argues that an audience will move to action only when it perceives an immediate and severe threat to its safety and wellbeing. I argue in my study that values language motivates or thwarts action depending in part on the immediacy of a threat, but also upon the degree to which the rhetorical action expresses values already espoused by the audience.

In addition to distinguishing my study from those in communications and journalism, I draw a distinction between environmental rhetoric and the genre "nature writing," as represented in the anthology of Robert Finch and John Elder, a distinction McKibben himself makes in his introduction to the Library of America collection *American Earth*: *Environmental Writing Since Thoreau.* McKibben admits that, although it overlaps nature writing, environmental writing "subsumes and moves beyond [nature writing], seeking answers as well as consolation, embracing controversy,

sometimes sounding an alarm" (xxii), doing "battle," engaging in "struggle," enjoining "fights," and taking up the "work of reorienting our lives to ward off the apocalypse that science now predicts" (xxv). Whereas the genre nature writing celebrates a mythical, pastoral, pristine Nature, and ecocriticism treats nature in literature (see Greg Garrard; Laurence Coupe; Dana Phillips), environmental writing is fundamentally rhetorical: To write about the environment is to *argue* for its survival in martial language, at least from Bill McKibben. Thus, I am examining the form, content, and context of *arguments* made by the environmental advocacy group *350.org*.

Existing studies in rhetoric employ Kenneth Burke's theory of identification among members of social communities; however, none addresses the climate change campaign mounted by *350.org*, and none constructs a rhetorical history of the movement's IDCA. For example, Greg Clark's study of the social aspects of national landscapes uses "Burke's work to expand our awareness of the rhetorical resources that prompt the individuals who constitute a community to adopt a common identity" (8-9). Clark's focus is how tourists establish their national identity by engaging with the physical space of national parks and the rhetoric of display therein. In addition, calling on Burke's term *identification* to indicate unity among group members over shared values, Stuart C. Brown and Leslie A. Coutant's study examines the ethical and pathetic appeals of direct mail solicitations by environmental groups.

The missing element in existing studies is a specific analysis of how the instruments of language and image motivate humans in certain scenes to change their practices toward the environment to avert catastrophic climate change. Kenneth Burke's theories about language as symbolic action provide the comprehensive and

flexible theory for analysis of the environmental rhetoric of Bill McKibben and his opponents.

Two elements in particular mark my study as distinctive and relevant to the field of rhetoric. The first is that Bill McKibben appeals to multiple audiences by asking them in speeches, online documents, and print publications to accept physics and chemistry as sources of indisputable evidence of global warming, evidence so authoritative, in his view, that its acceptance will inevitably convince adherents to pressure political leaders to adopt laws encouraging environmentally sustainable practices. McKibben uses the phrase *physics and chemistry* and the term *350* as symbols of authority, in the vocabulary of Kenneth Burke (*Attitudes Toward History* 329). To examine these phrases as symbols of authority allows me to incorporate the concept of "piety," Burke's term for adherence to a worldview. Jordynn Jack argues that "[t]he integrative function of piety explains why it is difficult to persuade people to change simply by telling them they are acting inappropriately" (455). Jack's interpretation suggests that a social movement must create a symbol of sufficient authority to compel adherents to move toward it, not only to move away from previous impious and inappropriate behavior. Convincing his audience to adopt *350* as a new symbol of authority is particularly difficult considering that it comes from what McKibben admits is a relatively esoteric scientific data point, the number of parts per million of carbon in Earth's atmosphere for sustainable human civilization. To attract adherents, McKibben and the *350.org* website must provide enough education to make the number make sense. Labeling *350* the single most important number on Earth, McKibben says that "the odd thing about the day [the IDCA] was that it was centered around an obscure data point—not around

celebrities or politicians but around understanding the scientific significance of *350* and taking action" (qtd. in Nichols). I will analyze the nature of McKibben's appeals to his audience to pledge allegiance to *350* as a symbol of authority, an emblem of adherents' piety to the cause of reducing carbon emissions.

The second distinctive aspect of this study is its focus on the digital identity of *350.org*. The designation *.org* marks the advocacy group's identity as fundamentally digital, a central feature of Gerard A. Hauser and Susan Whalen's new conception of "public" in contemporary social movements. However, my study moves beyond Hauser and Whalen's by demonstrating that *350.org* as an advocacy organization constructs its own scene, creates a public to inhabit the scene, becomes an agency—or instrument—within that scene as a potent symbol of authority; and, finally, operates as the tool for expanding the scene to include a larger audience. The act of taking and posting photographs on a website creates the scene of advocacy as viewers visit the site and engage in their own advocacy acts and potentially change their subsequent behavior. To examine the IDCA digital space as a scene, to analyze the subjects of the photographs as both parts of the scene and agents within it, and to identify the photographers as agents yields insight into the ways this particular social movement uses digital affordances to persuade visitors to the site to join the *350.org* movement, to change their own behavior, and to convince political leaders gathered for the UN conference in Denmark of the imperative to reduce carbon emissions.

I argue that the "coming together" at *350.org* and its related blog and user-response sites occurs in a digital scene to be distinguished from the audience for image events, such as those in Kevin DeLuca's analysis of EarthFirst! protests staged for

television cameras in the 1980s. McKibben's advocacy group claims to be "different [from] your average environmental group" ("Donate"), in part because it is relatively narrow in scope and newly created to take specific advantage of the affordances of digital communication.[1] The organization *350.org* views its potential adherents as inhabitants of both a physical locale and a digital public although the *350.org* donation form calls for a physical billing address, and the process for joining requires a person's name, email address, country, and postal code. However, the primary tools of communication employed by *350.org* before, during and after the International Day of Climate Action are electronic. In fact, there was no physical coming together of human bodies in a single massed act of environmental protest on October 24, 2009, but rather thousands of images of grand or modest IDCA events worldwide, images then accumulated at a website, which participants and others with Internet access can visit. The role of *350.org*'s digital photo album was to establish a digital scene, available to anyone with digital access in order to summon popular and political will for carbon emissions regulation.

Methodology

I draw on parts of four methodologies. The genre in which I am writing is a rhetorical history, Stephen Mailloux's term for the interpretation of "rhetorical

[1] Other environmental advocacy groups now considered mainstream, or "average" in the vocabulary of *350.org*, include the Sierra Club, the World Wildlife Federation, and the Nature Conservancy, Friends of the Earth and Greenpeace. Of these, only the Sierra Club acknowledged *350.org*'s IDCA event: "With just a few weeks left, now is our best opportunity to make a meaningful impression on the powers that be as they finalize their negotiating positions and before they pack their bags for Denmark. . . . Check out *350.org* to search for events near you or publicize yours," according to Sierra Club reporter Anne Tousseau.

exchanges taking place within institutional and cultural politics" (180). Mailloux argues that "acts of persuasion always take place against an ever-changing background of shared and disputed assumptions, questions, assertions, and so forth. Any thick rhetorical analysis of interpretation must therefore describe this tradition of discursive practice in which acts of interpretive persuasion are embedded" (17). Thus Mailloux's theory of a rhetorical history provides the genre for my study.

The most significant theorist on whom I call is Kenneth Burke. Doubtless Burke's direct comments about the environment bespeak a methodological suitability for this study. Scholarship by Jane Blankenship, Randall Roorda, Laurence Coupe, Marika Seigel, Joshua Frye, and Robert Wess are especially helpful in situating Burke in conversations about the environment. Burke's caution in *Attitudes toward History* about paying more attention to ecology is realized in the current debates about climate change and carbon emissions. Working from Burke's argument in *Permanence and Change* that humans often persist in beliefs that are insupportable in the light of new scientific discoveries, I present in this study a new connection among an individual's belief system, the reinforcement of the belief system through a culturally situated vocabulary, and the motives for an individual's move into a new belief system, or "piety," as Burke describes it. The element that allows persistence in old values and judgments Burke labeled "trained incapacity"; that is, a cultural and educational network of values and decisions that a person is trained into, that renders her incapable of adopting a new set of beliefs. In this study, I situate the rhetoric of Bill McKibben and that of the denialists within their networks of belief systems to demonstrate how their inflexibility of terminology renders them impotent to move beyond their positions. McKibben's definition of pious

behavior, for example, excludes anyone who appreciates fossil fuels and, by reinforcing a rigid condemnation of the carbon culture, balks action toward legislative change.

In addition, Burke's concepts of language as symbolic action and human behavior as drama provide a method for analyzing changes in beliefs about global warming. The different rhetorical contexts of *350.org*'s publications, Bill McKibben's speeches, interviews, columns, books constitute the slight or great changes of scene, or, in Burke's terms, the changes of circumference, which then set up different readings of the acts of persuasion surrounding the International Day of Climate Action. I clarify how each persuasive act fits into the various scenes of the UNFCCC drama, using Burke's pentadic terms to describe the ratios of scene-act and agent-act and to show the appropriateness or inappropriateness of the arguments within their scenes. Furthermore, because agents in various scenes are motivated to act in part because of the scene itself, an analysis of the scene-act and agent-act ratios that describe the actions of *350.org* and its founder Bill McKibben before, during, and after the International Day of Climate Action reveals aspects of McKibben's motives and those of some of the participants in the IDCA. Because, as Mailloux proposes, "arguments are always embedded in historical circumstances, rhetorical traditions, episodes of cultural conversations—all of which make certain arguments appropriate and others inappropriate at particular moments" (145-6), my analysis of scene-act and agent-act ratios yields insight into the origins and effects of *350.org*'s advocacy work, namely that 350.org provides a context for activists' contributions, but the website also becomes an actor by virtue of urging an advocacy position.

Also, I examine *350.org*'s attempts to change the beliefs and behaviors of its adherents using Burke's concepts of piety and symbols of authority. In Burke's lexicon, ambition is piety; in other words, our devotion to a certain order of what properly goes with what motivates or demotivates behavior. Groups of people believe that dedication to a given ideal requires certain behaviors of maintenance and persistence; thus they are pious. The essential connection among the pious is one of identification, a central term in Burke, to name both the substance—or essence—of a person and the process by which people cooperate with others. To perceive the substance of something is to understand its interior and its context, simultaneously. With one term, Burke demonstrates the importance of the scene in which a substance exists, out of which and in which it derives meaning. When an individual recognizes her own substance or that in another object or person, and gives it a name, she is participating in the process of identification; when she moves toward another person who appears to share that same substance, she identifies with that person in the process of consubstantiation. The intensity with which individuals adhere to these identifications is piety.

During periods of social change—such as the birth of an environmental movement—orientation, disorientation, and re-orientation occur when a social, political, or economic upheaval occurs to cause the pious to attend consciously to the terms under which they have been living. To use Burke's example from "Boring from Within," the pious finally notice the flags under which they have been marching. The "flag" could be any symbol of authority, including slogans, songs, code words, or a non-linguistic object. To be clear, it is not that the symbol of authority to which the pious have pledged allegiance is faulty; indeed, the symbol of authority might have been

appropriate for a certain context, or scene, in Burke's terms. But, as Susan Langer argues, systems of philosophical terms and understandings have a lifespan. They are born in and of an era, serving the needs of that era, but when technological and social changes occur, other philosophical systems arise to answer the new questions asked. Burke describes the need for change as a shift in the symbols of authority. Thus, Burke provides the theoretical framework for an analysis of existing beliefs about global warming and attempts to shift those allegiances to a new symbol of authority, in this case, the symbolic numeral, "3-5-0," used as a literal banner in the collection of photographs for the IDCA.

A third methodological source allows me to examine the online nature of *350.org*. Barbara Warnick offers "methods for studying discourse that, unlike print and other mediated texts, is often coproduced, interactive, intertexual, ephemeral, immediate, and/or distributed in nature" (23). The IDCA as a digital event rather than a face-to-face protest in a physical location requires analysis of online social movements, as contrasted with in-person social protests enacted in other contexts. Organizer Bill McKibben's proposal before October 2009 was that people all over the world compose and upload photographs that featured the numerals 3, 5, and 0, as well as a view of the geographical locale in which the photo was made. The result was that "people at over 5200 events in 181 countries *came together* for the most widespread day of environmental action in the planet's history" (*350.org*, 1 December 2009, italics mine). The 22,000 archived photographs are available for no charge through Flickr, and 345 of the photographs are currently available in a digital album at *350.org*. Warnick's theory provides a way to look at the digital album as a whole, but also to examine

representative photographs, which—although quite disparate in their own production values—are given equal rhetorical space at the website.

However, while important, the features of digital communication do not account for the success of the denialist campaign against climate change science and against legislation to reduce carbon emissions, a campaign distributed through a variety of media, including the Internet, but also through mass media print publications, and radio and television broadcasts. I look to Lloyd Bitzer, Maxwell Boykoff and Jules Boykoff to enable me to account for the persuasive force of the denialists' campaign. The denialists' finely honed insistence that climate change is a liberal fantasy and climate change science is spurious creates a "false symmetry," to use Boykoff and Boykoff's term, in media presentations of the issue. The result is that the public perceives climate change science as a debate among equally credible parties holding legitimate positions. Bitzer attributes to the public a general competence in assessing the validity of opinions it encounters. However, I argue that it is a widely acquired public incompetence—or trained incapacity—about climate change science that permits the denialists' argument to endure in mass media. The terms *incompetence* and *incapacity* both indicate a lack of ability, in this case, a lack of ability to distinguish between true and false claims about climate change. Bitzer argues that a public's competence is acquired through shared experiences, including learned definitions and conceptual systems in disciplines such as science (Bitzer 69, 87). Burke proposes that incapacity—like capacity, or competence—is also acquired. An individual or a public can be trained into incapacity by experiences similar to those that refine a capacity. These experiences include the definitions and concepts promoted by movement or counter-movement leaders. Over time, a public

acquires the movement's conceptual systems as its own; or, if the counter-movement urges the status quo, the public unknowingly accepts it without recognizing it as *incapacity*. Thus, seen in the light of my indictment of the general public, an advocacy group such as *350.org* believes that it functions as a special organization of persons whose purpose is to carry indispensable truths and values. The role of this special public is to overcome the trained incapacity of the wider public so that it may act on the new truths and values, in this case, to reduce carbon emissions for the good of the planet.

Scope of Analysis

This study will examine three groups of documents, organized by the scenes in which they operate. Burke's analysis of institutional and cultural backgrounds constitute *scene* in the drama of human motivation (*Grammar of Motives* xv). In this conception, scene is composed of sometimes overlapping circles, and, because of the digital world in which the IDCA was realized, the circles are best imagined as spheres within a three-dimensional space. I conceive of the documents for this analysis as occupying three overlapping spheres. To construct the general political and environmental advocacy scene in the five decades preceding the International Day of Climate Action (IDCA), I have chosen documents that mark changes in federal law and wider public attitudes toward the environment. The second scene I created from speeches and other documents by Bill McKibben before October 24, 2009 and on the occasion of the IDCA. Finally, overlapping but countering McKibben's sphere, the third scene is occupied by the denialist community with the express purpose of thwarting legislation to limit carbon emissions. These documents as actions will be the primary

focus of my analysis. I realize that a thorough examination would have to include a broader sampling of the *350.org* digital photographs, as well as detailed analysis of the documents produced by the United Nations and the United States Senate and House, but for the purposes of this study I am limiting the choice of documents to three scenes. I selected these three scenes because of the potency of the terminology at work in each, vocabulary that both reveals motivations and motivates behavior toward the environment.

Roadmap of Remaining Chapters.

In Chapter 2, I examine the first of the scenes of pertinent conversations in environmental rhetoric, especially those in which certain terms migrate and increase in currency. To do so, I subdivide the period between 1965 and 2009 into three smaller scenes, defined by the changes in vocabulary employed by significant actors, such as President Lyndon B. Johnson, in the drama of the environmental debate. I trace the development of environmental rhetoric from 1965 forward in order to construct the historical framework of arguments made by *350.org* in anticipation of the International Day of Climate Action. This chapter describes how Kenneth Burke's theories of the dramatic pentad and terminological circumferences open a way to examine changes in beliefs and behaviors about climate change.

Consistent with Mailloux's concept of a rhetorical history, chapter 3 focuses on the political climate leading to the October 2009 International Day of Climate Action, including the development of *350.org* under the leadership of Bill McKibben. Read against the ratios of scene-act and agent-act, the documents which *350.org* produced and distributed to visitors to the site provide concrete instructions for how to

participate as activists in the IDCA, McKibben's encouragement to adherents before October 24, 2009, and his analysis for broader audiences afterwards. In addition, I examine the nature of McKibben's appeal to scientific fact as an irreducible and irresistible source of evidence for his audience's motivation to shift their allegiance to a new symbol of authority, a symbol displayed most prominently in *350.org*'s digital collection of photographs submitted by participants in the IDCA. I provide an overview of the IDCA digital album at *350.org* and a detailed examination of two representative photographs. I analyze the power and limitations of an event constructed as an episode of digital activism. In particular, I analyze the iconic photograph of the IDCA event in Sydney, Australia because it was featured as the first and most accessible photograph from the digital album. The second photograph is of a much smaller event at a school in Ghana, representative of the wide scope of the IDCA and the nature of many of the IDCA events carried out with simple, inexpensive materials available to school children. The focus of these analyses falls upon the composition of the photographs as well as their placement in a digital album.

In Chapter 4, I explore the factors contributing to the public resistance to legislation to reduce carbon emissions. Not only is the science of climate change complex, but the public's ability to comprehend it is undermined by a general lack of basic science education. In addition, attempts by mass media reporters to treat sources fairly convey to the public an appearance of symmetry between the majority of climate scientists and a small but vocal minority of climate change deniers. In this chapter, I trace how the denialist community takes advantage of public incompetence regarding science and of public suspicion toward international entanglements, such as proposals

by the United Nations. Finally, in chapter four, I explore the tendency of both the climate change deniers and Bill McKibben to represent their positions as complete and perfect solutions to climate change. Both groups are trained into an incapacity, in Burke's language, that encourages them to reduce their understanding of the climate change debate to memorable slogans, in these cases, perfectly capable of balking action that might potentially solve the climate change dilemma.

Conclusion

This study constructs a rhetorical history of *350.org*'s International Day of Climate Action using Kenneth Burke's theory of language as symbolic action in the drama of human behavior. I demonstrate that a rhetorical history allows a thick reading of the situation out of which *350.org* imagined an online space created by thousands of participants across the globe, all motivated by adherence to, or piety towards, a scientific data point. The study presents the mechanisms and efficacy of Bill McKibben's appeals before the UNFCCC, selected because of their distinctive insistence that the physics and chemistry of climate change are irresistible symbols of authority if understood appropriately by the audience. The study contributes to environmental rhetoric—and to social movement rhetoric more broadly—by applying Mailloux's theory of rhetorical history and Kenneth Burke's theories in a context previously unexamined. As Marika Siegel argues, Burke's prescience about the importance of ecology over the decades after the Dust Bowl make his theoretical concepts especially apropos for this study.

Chapter 2: Choosing Terminology in the Global Warming Drama

"Utilities, and the politicians who regulate them . . . have three missions: keeping the lights on, at something approaching affordable prices, on a habitable planet."
Bill McKibben, 2007

A compelling story, even if factually inaccurate, can be more emotionally compelling than a dry recitation of the truth.
Frank Luntz, 2003

The surest way to balk action is to choose words that draw lines at the wrong places.
Kenneth Burke, 1937

The environmental phenomenon of global warming, according to 97% of the world's climate scientists, is planetary in scope and potentially unlimited in duration. Its effects, however, are felt acutely at the local level ("Consensus"). Six greenhouse gases (GHGs)—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride, released during the burning of fossil fuels to produce electricity and to move our vehicles—exacerbate the warming (Meinshausen et al. 1160). The central paradox of this situation is that the fossil fuels essential for sustaining human civilization as we have come to know it are the sources of the potentially irreversible warming of the planet, a warming that already causes heretofore unimaginable climate disruptions, with implications for human civilization, as well as for every plant and animal species in every ecosystem on the globe. The crises include an unprecedented rise in sea levels, changes in planting zones, and security threats to nations previously protected by ice barriers.

Crises of this magnitude must certainly motivate all of humanity to change the behaviors that so threaten our existence, behaviors such as mining, developing, and consuming of fossil fuels. Viewed as scenes of dramatic action, according to Kenneth Burke's theory of human motivation, crises elicit attitudes and behaviors—including linguistic action—in response to interpretations of the type and severity of threats to humanity's wellbeing. Conversely, an examination of human conduct reveals "the motivating influence of the crisis" ("Dramatism" 446). Specifically, as Burke argues, the language people use to characterize a crisis reveals both their interpretation of its nature and intensity and their proposed actions in response to the crisis. In sum, when a crisis occurs, humans respond in terminology that reveals their motives for creating new scenes of dramatic action.

The crisis of global warming, however concrete its physical manifestations, is indeed a rhetorical situation in which interested parties attempt to control perceptions by choosing terminology that will motivate choices by potential adherents. Environmental advocacy groups, such as *350.org*; international bodies, such as the United Nations; and climate-change deniers, such as most of the Republican Party, have chosen certain terms with which to characterize the global warming crisis, terms that will potentially motivate audience responses consistent with that terminology. In other words, the vocabulary itself becomes an actor (or agent) capable of motivating behavior.

These three groups in particular have attempted to motivate responses to the crisis of global warming by controlling the debate about its nature, scope, and severity. Founder of *350.org* and environmental journalist Bill McKibben and adviser James

Hansen, a scientist recently retired from the Goddard Space Institute, define global warming as the single most important problem faced by humankind.[2] Because of the global scope of the problem, the United Nations (UN) has facilitated a number of initiatives, most notably a series of summits beginning with Stockholm 1972, to engage its 193 member nations in treaties designed to mitigate the worst consequences of climate change. The energy and optimism of the UN efforts came into particular focus in December 2009 at the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen, Denmark, where international political leaders confronted an opportunity either to extend the 1997 Kyoto Protocol or to create a new treaty to reduce greenhouse-gas emissions. Opposing this effort, other individuals and advocacy groups argued that no global warming crisis existed, or that humans did not create it, or, if it did exist, that the nature, scope, and duration of the so-called crisis were not as dire as scientists have portrayed it, and technology would fix it. Before the UNFCCC in Copenhagen and since, Oklahoma Senator James Inhofe, other Republican members of the Senate Environment and Public Works Committee, and the current Speaker of the House John Boehner all deny that global warming exists ("Call Out the Climate Change Deniers").

In the months leading up to the UNFCCC in Copenhagen, advocacy groups on all sides of the climate change question spent considerable money to control the terms of debate in order to balk action attempted by their perceived opponents.

And balk they did.

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[2] John Vogler, author of "Environmental Issues," argued in 2008,"climate change is now *widely perceived* to be at least the equal of any other issue and arguably the most important faced by humankind" (366, italics added).

Although pro-environment groups invested more than $22 million in lobbying efforts, while the oil and gas industry spent $175 million during the same period (Mackinder), neither the UNFCCC's nor the United States' attempts succeeded in limiting GHG emissions. Two decades of attempts[3] to promote US legislative action reached a peak in June 2009 with the passage of the Waxman-Markey bill in the House, proposing a cap-and-trade system to reduce emissions of the six primary greenhouse gases and to promote the development of clean and renewable energy sources (Pew Center for Climate and Energy Solutions). In addition, although federal restrictions on GHGs appeared likely to pass the Senate the following spring, the bill was sidelined by other legislative priorities, as determined by Senate Majority Leader Harry Reid. Public opinion had begun to shift as well: The 2009 and 2010 polls by the Pew Research Center for the People and the Press reported that only 57% and 59% of those

[3] During U.S. Senate hearings on *Policy Options for Stabilizing Global Climate* during March 1989, members of the Environment and Public Works Committee (EPW) argued that "a wide range of policy choices is available to reduce greenhouse gas emissions while promoting economic development, environmental, and social goals. . . . If no policies to limit the emission of greenhouse gases are undertaken, the equivalent of a doubling of CO2 occurs between 2030 and 2040 . . . [and] the Earth warms by 2-6 degrees by the end of the 21st Century." In anticipation of the IPCC's first report, due in 1990, the EPW Committee proposed the *Climate Protection Act* as a means of working through the EPA to reduce greenhouse gas emissions, encourage reforestation, and increase energy efficiency (*Policy Options* 55). The hearings specifically lauded the success of the 1972 Montreal Protocol in limiting CFCs to repair the hole in the ozone. In the view of the committee and of EPA Administrator William K. Reilly, the Protocol demonstrated the ability of the international community to cooperate in solving a very complex problem. In 2006, Vermont Senator Jim Jeffords's *Global Warming Pollution Reduction Act* proposed amending the *Clean Air Act* to reduce carbon emissions to 80% of 1990 levels and to enact other emission controls if "global atmospheric concentrations exceed 450 ppm." In addition, Rhode Island Senator Sheldon Whitehouse's 2007 *Global Warming Wildlife Survival Act* proposed the creation of a coordinated national strategy "based on sound science" to address the threat to all ecosystems of human-induced global warming. Also the bi-partisan 2007 Lieberman-Warner Bill, *America's Climate Security Act,* died in committee.

responding believed that global warming was happening, a decrease of 22% and 20% from the Pew samples from 2008.

By July 2010, the conversation about global warming legislation had disappeared from the Senate agenda, the House bill was nowhere in sight, and the promise of Copenhagen lay unfulfilled.

What happened in the public and political debates before and during "Hopenhagen" that balked action, instead of moving it forward?

Each party to the global warming debate claims that other constituencies have chosen words that, in Burke's view, "draw lines at the wrong places." In other words, each side has defined or dismissed the global warming problem with language that creates barriers to compromise and makes solving the problem almost impossible. A recent example illustrates that global warming is a problem of rhetoric, as well as of physics and chemistry. In June 2012, Chris Stolle, a Republican delegate to Virginia's House of Delegates, refused to greenlight a $50,000 study of the impacts of climate change on the state's shores until the term "sea level rise" was excised in favor of "recurrent flooding," "coastal resiliency," and "increased flooding risk" (Cline). Objecting to "sea level rise" as a "left-wing term that conjures up animosities on the right," Stolle insisted that he wanted to study what people care about, which is "the floodwater coming through their door." Although Stolle claims to be interested primarily in the facts of the physical world, he identifies *terminology* as the central agency in this rhetorical situation. In other words, choosing certain terms over others forestalled legislative action to mitigate the effects of global warming.

In the broader debate about global warming, words used by both environmental activists and climate-change deniers have drawn lines that balk action from all directions. To shed light on the process by which language forestalls or promotes action in response to global warming, I am constructing this rhetorical history of the arguments made before *350.org* initiated their International Day of Climate Action (IDCA) in anticipation of the UNFCCC.

Consistent with Steven Mailloux's definition of a rhetorical history, this chapter explores rhetorical situations—or dramatic scenes, in Burke's language—preceding *350.org*'s effort to persuade nations attending the UNFCCC in Copenhagen to lower carbon and other GHG emissions. Acts of persuasion, according to Mailloux, "always take place against an ever-changing background of shared and disputed assumptions, questions, assertions, and so forth" (17). In the case of the UNFCCC in Copenhagen, *350.org* attempted to persuade political leaders to accept the scientific consensus that global warming is a genuine threat to which they must respond, while other advocacy groups argued that no emissions problem existed and no action was necessary. My study traces the "rhetorical allies and enemies, strategic moves [employed] to dominate the field, battles to win arguments decisively, and sometimes grudging or graceful retreats" of the parties to the climate-change debate (Mailloux 147).

Burke's theory of the capacity of language to both describe and motivate action is especially apropos to my study because it provides a sensitive heuristic for explaining the rhetorical dimensions of the global warming debate. In this chapter, I argue that the strategic uses of terminology define environmental problems and direct US policy in the decades before the UNFCCC summit in Copenhagen in 2009. More important, I argue

that the terminology used by proponents of climate change legislation inadvertently opens avenues for opponents to successfully undermine the arguments of environmental advocacy groups. I analyze conversations about environmental crises from two rhetorical scenes within the United States from 1965-70, and 2001-2002, and a third scene between these two, created by United Nations documents from 1972 to 1995. In these scenes, attitudes toward the environment circulate and shift around key terms appearing frequently in speeches, US agency documents, and popular media. Following Burke, I am treating these three periods as general scenes within which individual documents appear in particular subscenes with a more constricted scope, or circumference.

Justification for the Selection of These Terms in Three Scenes

My purpose in this chapter is to demonstrate how certain terms—such as *pollution*, *conservation*, *beautification*, *environmentalism*, *ecology*, *climate change*, *global warming*, *economy,* and, more generally, the tentative language of scientific claims—were employed during clustered rhetorical events that changed the course of the environmental movement in the United States and the UN. Documents from the first scene (1965 to 1970) demonstrate first the gradual surrender of the notion of—and the term—*conservation* as had been widely embraced in the first half of the twentieth century and then the tentative employment of the new term *environmentalism* to capture both a new identity and new agenda for activists. However, the most prominent term in the scene is *pollution*. The scene opens with President Lyndon B. Johnson's 1965 address calling on Congress to remediate widespread pollution of air, water, and land, and, in an aberration from the rest of this scene and others to follow in this analysis,

Johnson calls on the principle of beauty as intrinsic to the American landscape. The second rhetorical act of this scene is Wisconsin Senator Gaylord Nelson's introduction to Congress of the *Environmental Agenda for Earth Day 1970*, the event Senator Nelson engineered in response to his view that unrestrained private enterprise was the main driver of pollution, but also in response to the increasing public outcry over decades of environmental catastrophes. This scene climaxes with President Richard M. Nixon's 1970 policy address establishing the Environmental Protection Agency, the most powerful entity at the time charged with addressing widespread pollution in the U. S.

After 1970, the term *conservation* had largely disappeared from conversations about the environment, whereas the term *pollution* retained its pre-eminence. A number of well-known "old conservation" organizations, as Hal Rothman labels them, had previously worked toward specific goals of preserving particular types of natural resources in the US, but there was no unified environmental movement until after World War II. Although the Sierra Club (founded in 1892) established national parks; the National Audubon Society (1916) protected birds and bird habitats; and the Wilderness Society (1935) preserved public wild lands, none of these nor other individual organizations mobilized a wide or diverse American public in the first half of the twentieth century to address what became environmental concerns of the entire nation. However, in the midst of post-World War II prosperity, increasing numbers of Americans from a variety of cultural and economic spheres grew aware of the environmental costs of their tanks, bombs, vacuum cleaners, televisions, and automobiles: These they could buy, but, as Adam Rome argues, they could not "simply buy fresh air, clean water, or sprawl-free countrysides" (12). This growing awareness

evolved into the public activism and political will to address the deterioration of the nation's environment as a whole.

Consequently, the more encompassing term *environmentalism* achieved new prominence. From 1970 and during the last decade of the century, *environmentalism* functions in part as a code word in a litmus test distinguishing conservatives from liberals. The emerging terms *climate change* and *global warming* grew especially potent as President George W. Bush assumed office in 2001, marking the second scene of my study, a scene of a contentious debate about the environment anticipating the Kyoto Protocol, signed by President Bill Clinton, but left to his successor for ratification. Early in his first term, President Bush accepted the terminology of the 1997 Byrd-Hagel Senate Resolution opposing ratification of the Kyoto Protocol. Promoted by Robert Byrd, Democratic Senator of West Virginia and Chuck Hagel, Republican Senator of Nevada, the resolution communicated the unanimous view of the Senate that "the level of required emission reductions, could result in serious harm to the United States economy, including significant job loss, trade disadvantages, increased energy and consumer costs, or any combination thereof" ("Byrd-Hagel Resolution"). The Byrd-Hagel language of the economic implications of the Kyoto Protocol, rather than its potential for reducing global carbon emissions and thus slowing global warming, provided President Bush with commensurate terminology for his response. Expressing his faith in the free market to solve any problem with the environment, the President postponed action by urging further study of "the incomplete state of scientific knowledge of the causes of, and solutions to, global climate change." Two rhetorical moves defined the climate change debate for President Bush: Incomplete knowledge

requires ongoing research, that is, research without a deadline; and the economic results of limiting carbon emissions trump the environmental benefits. In addition, in 2002, Republican strategist Frank Luntz created and distributed a glossary and talking points for Republican candidates and legislators needing to convince a skeptical public of their concern for the environment. The Luntz memo is the focus of my analysis in this scene although I will also address the rhetorical blunders President Bush commits that necessitate Luntz's tutorial.

Parallel to these two scenes in the United States, the United Nations began discussions on climate change in a 1972 Stockholm Conference that gave new prominence to the problem of global warming. In its 1988 declaration, the UN created the Intergovernmental Panel on Climate Change (IPCC) as a clearinghouse for the science of climate change. In 1995, the IPCC published its *Second Assessment Report (SAR)*, asserting for the first time that humankind's influence on global climate was discernible (Santer et al. 439). From 1972 to 1995, this new cluster of rhetorical acts evinced the rhetorical power of the terms *climate change*, *global warming*, and, more generally, the language of scientific evidence and economic progress, a power that enabled them to create or negate efforts to change environmental policy.

My analysis of these three overlapping scenes creates the rhetorical history of *350.org*'s International Day of Climate Action. In selected rhetorical situations in these three clusters, the terms take up the role of agent with increasing power to affect policy decisions about carbon emissions. Individual terms work as rhetorical instruments (or agencies), to create identity and effect change. Viewed from later periods, these terms appear scenic; in other words, the terms are absorbed into the totality of a scene to

become elements in the background of a historical event. The conclusions I draw in this chapter demonstrate Kenneth Burke's observation that carving out terminological territory—or choosing words that draw lines—promotes or thwarts action, in this case, regarding carbon emissions that contribute to anthropogenic global warming.

In this chapter, I will first present the Burkean concepts that I use to examine representative terms in a series of scenes. In the next three sections, I will sketch the rhetorical context for each group of documents I analyze, thereby creating the rhetorical history leading to the United Nations' efforts to negotiate binding carbon emission treaties. Following the context narrations, I will analyze the key terms, their functions in the scenes, and in some cases, their migration into other roles in overlapping scenes in order to demonstrate the potential power of vocabulary to motivate and de-motivate environmental activism.

Burke's Terms

Occurrences of environmental rhetoric around different catastrophes have the potential to stimulate action in one scene and then generate subsequent scenes of environmental rhetoric that fosters action. To uncover significant revelations about human motivation, Burke proposed asking questions about human behavior in terms of dramatic scenes: "What was done (act), when or where it was done (scene), who did it (agent), how he did it (agency), and why (purpose)" (*A Grammar of Motives* xv). In a given scene of environmental advocacy, a movement leader-as-agent employs words as an agency (a tool, or instrument, or means) to motivate others to respond, and the agent's choice of words in turn reveals her own motives. Thus, upon delivery in a given scene, vocabulary inhabits that scene, or in other words, becomes *scenic*. Then

subsequent readers—social movement leaders, for example—look back upon those words as elements integrated into the historical scene. However, if environmental advocates later wield a historical term as a motivating instrument, the terminology once again becomes an agent. In a migration of terms, then, elements of one scene take up different roles in other scenes. The migration of the terms creates the overlap in the scenes.

For example, the historical scene of President Lyndon B. Johnson's 1965 speech to Congress includes the following sentences: "Air pollution is no longer confined to isolated places. This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels." In 1965, the speech was the *agency* by which the President sought to motivate Congress to enact legislation to reduce pollution and restore the American landscape. However, from the current moment in 2014, we see the speech itself, and all the words within it, as a historical artifact, an element in the 1965 *scene* occupied by the President and the Congress. Thus, with the passage of time, the speech and its key terms—*pollution*, *conservation*, and *beautification*—have migrated from *agency* to *scene*. Moreover, a movement leader's reference to the President Johnson's speech in its 1965 scene as precedent for her own movement's action—perhaps as a historical instance of bipartisan cooperation—constitutes a new migration of the *scene* to a position of *agency*, thereby creating overlapping rhetorical scenes.

In addition to Burke's model of drama, his concept of terministic screens suggests that the words one selects for a given rhetorical scene reflect a worldview, as well as an attitude toward specific circumstances within that scene. Terms also deflect

attention away from elements one might wish an audience to ignore (*Language as Symbolic Action* 45). Thus a term becomes an agent for changing the behavior of the audience, in effect casting away the aspects of a scene that might complicate or otherwise alter the portrayal most advantageous to the speaker. Indeed, political figures from all persuasions have long recognized the power of language to alter public opinion.[4]

The prevalence of terminology in a given text indicates how advocacy groups and their leaders, as well as politicians, scientists, and journalists construct a rhetorical scene to their advantage. Or as Burke says, "To select a set of terms is . . . to select a circumference" (*GM* 90) to include elements the speaker approves of and to exclude those she disapproves of. Burke argues that every attempt to identify motive involves defining the rhetorical situation—in essence, circumscribing the scene—by choosing the vocabulary with which to describe it: "The choice of circumference for the scene in terms of which a given act is to be located will have a corresponding effect upon the interpretation of the act itself" (77). Thus, in the scene of any given debate about an

[4] A notorious example is Newt Gingrich's 1994 GOPAC booklet "Language: A Key Mechanism of Control," distributed to Republican leaders in order to help candidates define the contrasts between their positions and those of their opponents. The "Optimistic Positive Governing Words and Phrases" to be read, memorized and used included *activist*, *pro-environment*, *prosperity*, *freedom*, *liberty*, *hard work*, and *we*/*us*/*our*. The "Contrasting Words," for use in describing all things Democratic, include *anti-jobs*, *betray*, *bizarre*, *cheat*, *bureaucracy*, *corrupt*, *decay*, *devour*, *greed*, *hypocrisy*, *ideological*, *impose*, *incompetent*, *liberal*, *lie*, *limits*, *pathetic*, *radical*, *selfish*, *sensationalists*, *shame*, *sick*, *stagnation*, *steal*, *taxes*, *traitors*, *waste*, *welfare*, and *they*/*them*. In addition to increasing the distinctions between the parties, Gingrich's memo attempted to solidify the Republican Party's reputation as the party that would best represent the nation's interests, including unregulated capitalism, but did not necessarily emphasize eradication of pollution or other matters of the environment, in spite of the inclusion of the term *pro-environment*.

environmental issue, defining the terms of a debate locates—and thus controls—the debate. What elements are to be considered *acts*? Any given text of a speech, interview, press release, editorial, blog, or quote for a news story in which a person speaks to questions about the environment and shifts the circumference of debate by selecting certain terms as central to the scene. Changing the terminology of the debate works to change the motivating elements at work in the scene. Further, Burke argues, "the quality of the context in which a subject is placed will affect the quality of the subject placed in that context" (*GM* 77-78). In other words, the scene, agent, and agency are inextricably linked within the circumference of the rhetorical situation.

I am applying Burke's theoretical model to the scenes where conversations about the environment occurred because Burke's model offers the most productive method of explaining the persuasive power of language in successive rhetorical situations. Narrating the development of these three scenes of debate allows me to demonstrate how changes in terminology create rhetorical instruments, or agencies, by which, as Burke argues, "men (sic) can obtain the cooperation of one another" (*LSA* 20). This intrinsically hortatory function of language (20) suggests that language is not chiefly a means of conveying information, but is a mode of action. The vocabulary of debate is capable of eliciting support for, or opposition to, policy decisions about climate change. Repeating—and sometimes changing the role of—the terms creates overlap in the scenes where individuals and groups seek to persuade others to act on the science of climate change.

Scene One, 1965 to 1970

President Lyndon B. Johnson: From Pollution to Beauty

Between 1965 and 1970, threats to the environment occupied more and more space in mass media outlets and prompted shifts in the terms of debate about ameliorating the problems. Concern for the environment percolated into popular culture during this period following President Johnson's speech, the First Earth Day, and the founding of the EPA. Within a year of the EPA's opening, Dr. Seuss published *The Lorax*, a children's book about environmental destruction by a greedy industrialist. Actually two books by Bill Peet on this theme, *Farewell to Shady Glade* in 1966 and *The Wump World* in 1970, preceded *The Lorax*. All three works draw clear lines of battle, the environment on one side and industry on the opposite. The popularity of *The Lorax* is significant because of the broad appeal of its print version. Its influence was extended by remediation into a TV special in 1972, and its current rebirth as a feature-length movie release in March 2012. Thus the nursery and preschool classrooms became scenes of environmental rhetoric: The agents were parents, nannies, and teachers; the agency, the books of Dr. Seuss and Bill Peet. Indeed, the introduction of threats to the environment to children created not only an awareness in the 1970s, but also increased the sensitivity of that generation of Americans to the possibility of anthropogenic climate change, as reflected in the National Institutes of Health study (Wray-Lake et al.).

In the span of only five years—from 1965 to 1970—what propelled a change in the tone and terms with which President Johnson, President Nixon, and Senator Gaylord Nelson discussed the environment was the number and severity of crises, as well as the public's growing awareness of the proximity of the problems to their own

air, water, and land. Delivered between 1965 and 1970, President Johnson's "Special Message to the Congress on Conservation and Restoration of Natural Beauty," Wisconsin Democratic Senator Gaylord Nelson's speech to Congress to introduce Earth Day, and President Nixon's "Special Message to the Congress" to introduce the Environmental Protection Agency moved the language of environmental crises to the foreground of political conversations, primarily by focusing on the word *pollution*, but injecting other terms as well, such as *beauty*, into the discussion of how to best recover and preserve America's natural resources. Also the language of economics in Nelson's speech reinforces the view that care for the environment and unrestrained capitalism are incompatible.

A number of notorious episodes of environmental damage occurred before President Lyndon B. Johnson ushered in several legal remedies from 1963-69, but the episodes were so pervasive and complex that they remained unfinished business to be taken up by President Richard Nixon and by Senator Gaylord Nelson in 1970. Air pollution emergencies in the industrial valley of Donora, Pennsylvania in 1948, in New York in 1953, and Los Angeles in 1955, propelled the first wave of local and federal legislation to control air pollution, measures that actually did little to prevent the continued release of pollutants (Shabecoff 103). Nuclear accidents near Detroit in 1960 and in Arco, Idaho in 1961 prompted increased scrutiny of nuclear power plant technology in the United States. Carson's 1962 *Silent Spring* propelled conversations about the environment into the living rooms of everyday folks, after which US laws regulated the indiscriminate use of DDT as a broad-spectrum pesticide, but more

important, with the widespread distribution of Carson's book, public awareness of pollution of the environment increased.[5]

Other crises motivated both public outcry and media attention and some legislative measures. The enormous oil spill in Santa Barbara, California, evidence of neurological damage from leaded gasoline, the Cuyahoga River fire in Ohio from the heavy concentration of inflammable industrial chemicals, the choking of Lake Erie by phosphates; the dumping of toxic PCBs into various rivers; the contamination of food fish by mercury, all contributed, according to Shabecoff (103), to the public readiness for anti-pollution legislation and set the stage for President Johnson's action in 1965. The President had already supported a number of measures, such as the Wilderness Act of 1964, to summon the weight of the federal government to protect natural resources. But as early as 1955, Senate Majority Leader Johnson witnessed the legislative and public relations battle over the controversial Echo Park Dam project on the Utah/Colorado border. During Senate hearings, according to Hal K. Rothman, opponents of the dam used scientific evidence to justify its elimination from the river system. Rothman argues that this formative experience less than a decade before Johnson assumed the Presidency helped to shape his dedication to environmental restoration (Rothman 44). Most important, although not bearing legislative fruit, the 1965 report *Restoring the Quality of Our Environment* by the President's Science Advisory Committee was, according to William Kellogg, the "first public recognition in a United States

[5] According to Lynn Llewellyn, et al., "During this time, the environmental movement began to catch the attention of the national media. The number of articles on environmental topics in the *New York Times* doubled from 1964 to 1965. Public opinion polls conducted by the Opinion Research Corporation showed the percentage of Americans who thought air pollution was a serious problem also almost doubled from 28% in 1965 to 55% in 1968."

government document that *climate change* could be caused by human activities and that this would have important consequences for the world" (Kellogg 117, italics added).

Johnson's "Special Message to the Congress on Conservation and Restoration of Natural Beauty" on February 8, 1965, spelled out the values of his administration toward the nation's natural resources. He makes the case for restoration of the nation's natural beauty by making not only an aesthetic appeal, but also ethical and economic appeals. The language with which Johnson took up the cause of conservation and beautification of natural resources demonstrates his and the First Lady's commitment to improving the environment. The noteworthy terms in the address are *beauty* and *pollution*, derivations of each occurring forty-five times in the speech; references to *ugly* or *ugliness* occur six times. Johnson's conjoining of the term *pollution* with *beauty* lifts the argument out of the realm of the cosmetic decoration of the landscape with flowers, a position staunchly defended by the First Lady's commitment to clean water, air, and roadsides, as well as safe waste disposal and enhanced national parks ("The Life and Legacy of Lady Bird Johnson"). The President's insistence that beauty be treated as an essential contribution to the "true national income," incalculable by a statistician, but necessary to "satisfaction and pleasure and the good life," seems at odds with his reputation for playing political hard ball. But he broadens the appeal of the aesthetics of a beautified natural landscape to "the total relation between man and the world around him. . . . [whose] object is not just man's welfare but the dignity of man's spirit."

This line of argument allowed Johnson to redefine *conservation* to include "the protection and enhancement of man's opportunity to be in contact with beauty . . . as a

part of daily life . . . [equally accessible to] rich and poor, Negro and white, city dweller and farmer." Johnson actually proposes that the term *classic conservation* to name the traditional—and limited—concept of "protection and development" be abandoned in favor of "a creative conservation of restoration and innovation," a new concept of conservation in which "the protection and enhancement of man's opportunity to be in contact with beauty must play a major role." In Johnson's terms, "ugliness is costly," as in the cases of cleaning soot from buildings or building new areas of recreation when the older parks and lakes are degraded beyond use. As both Rothman and Shabecoff argue, the old conservationists believed in setting aside resources such as forests, grasslands, and ore-rich mountains for the express purpose of profitable development by low-cost leases to logging, ranching, and mining corporations, and, only if convenient, for public recreation as well. Although Johnson does not advocate the closing of strip and surface mining operations, he does propose a study to "furnish the factual basis for a fair and reasonable approach" to correct the "errors," as he calls them, of these mining practices. Rather than condemn private enterprise as the engine of waste, Johnson explicitly names "private economic development" as the "greatest single force that shapes the American landscape. . . .[Therefore] taxation policies should not penalize or discourage conservation and the preservation of beauty." This move in particular suggests Johnson's ability to straddle political divides which in future decades render climate change legislation impossible because the factions fall back into the false dichotomy of choosing the economy over the environment, or vice versa. Johnson's speech acknowledges the vital importance of mutual support.

In the light of the 2009 Congressional debate over environmental protections that explicitly pitted the federal government against states' rights, it is noteworthy that in his era, President Johnson framed his argument for pollution control, restoration of natural spaces, and highway beautification in terms of federal *help*, *assistance*, *training*, and *study*. Although these terms do not appear to dominate the rhetoric of the speech, they suggest a certain light-handed approach, in contrast to the accusations of later factions of federal intrusion and overreach into states' domains. He argues that the role of the federal government's information and technical assistance, research support, and economic incentives is to "help communities and states in their *own* programs of natural beauty. . . [and] to encourage . . . institutions and private citizens in their *own* efforts" (emphasis added). In addition, Johnson names pollution as an expensive threat to beauty, and beauty as a feature of environmental justice, this last a corollary to his wider executive agenda for economic and civic justice in the Great Society. Also, Johnson proposes no fewer than seven studies to advance the cause of restoration of natural beauty, including investigations into the effects of pesticides in the food chain and the science of plant and animal ecosystems integrated with humankind's development of urban spaces. In other words, to seek a scientific basis for executive or legislative action regarding the environment was in the 1960s an accepted approach to a complicated problem. Johnson's assumption appears to be that Congress would accept the scientific results and act accordingly. This assumption was borne out in bipartisan legislation for environmental protections until President Ronald Reagan and members of his administration scoffed at scientific evidence suggesting that the byproducts of unbridled capitalism posed dangers to the planet and attempted to thwart

environmental laws (Conway and Oreskes, "Why Conservatives Turned Against Science").

Although the address is less focused on air pollution than on the degradation of land and water, the President does define air pollution as a global problem: "Air pollution is no longer confined to isolated places. This generation has altered the composition of the atmosphere on a global scale through radioactive materials and a steady increase in carbon dioxide from the burning of fossil fuels." Looking back forty years, contemporary advocates for carbon emissions limits might quarrel with LBJ's priorities, but given the burning of rivers and the continued prevalence of strip mining, it is logical that President Johnson advocated for programs to address what at the time appeared the most egregious problems. The terms the President employs convey an urgency to remediate environmental damage by reclaiming America's beautiful landscapes. The dramatic energy from this scene propels environmental action even as President Johnson's administration ended, energy that bears fruit in the first Earth Day and in the creation of the Environmental Protection Agency, both in 1970.

Senator Gaylord Nelson: From Pollution to Ethical Ecology

Two climactic events in 1970 reinforced and reflected a growing cultural awareness of humankind's capacity to destroy the ground on which their prosperity was built: The first Earth Day and the establishment of the Environmental Protection Agency. Creating intensity of purpose in caring for the environment was Wisconsin Democratic Senator Gaylord Nelson's goal for Earth Day in April 1970, as he declared to Congress in January 1970. The occasion was Nelson's support of a bipartisan "Senate Joint Resolution Relating to an Environmental Agenda for the 1970s." The speech has

three sections: the first, a description of the extent of America's environmental problems—including who is to blame; the second, an optimistic description of the rise of an "ecological ethic," led by students newly aware of the earth they inherit; the third, a delineation of eleven specific legislative interventions in pollution control and environmental education, including a Constitutional amendment guaranteeing a decent environment to every American citizen. Nelson's conception of the ecological ethic encompasses all peoples of the globe, led in theory by Americans from his present time into the unlimited future, shifting the question of political action from short-term expedience to understanding and respect for humankind's mutual dependence on the natural world. However, unlike Nixon's speech later in 1970 or that of President Johnson in 1965, Nelson explicitly condemns faith in private enterprise for creating "the darkening cloud of pollution [that has begun] degrading the thin envelope of air surrounding the globe."[6] Nelson continues to employ the term *pollution* as did President

[6] The phenomenon, if not the term *free market fundamentalism* (FMF), is described by Burke although he was writing this theory in 1945. "The increased use of monetary symbolism as an integral part of the economic process led nations to develop their productive and distributive systems in accordance with the money motive as a rational test. This necessarily meant a 'transubstantiation' of money, from its function as an agency of economic action into a function as the ground or purpose of economic action. That is, instead of using money as a medium to facilitate the production and distribution of goods, men were moved to produce and distribute goods in response to money as motive" (92). Free market fundamentalists (FMFs) see money produced from capitalism as second nature, and thus normative. Whereas the purpose of the economy, Burke argued, was to provide sustenance and well being for a people, moving money into the role of motive narrowed the purpose to merely making a profit. This narrowing of the circumference of the economic process means that all decisions—including those about the planet's climate—are defined in terms of money. This reading suggests that all other arguments about climate change—bogus science, carbon rationing, and world government—are proxy arguments constructed purposefully to muddle the debate about legislation that might potentially mitigate global warming. Roger Pielke argues that "if there is an iron law of climate policy, it is that when policies focused on

Johnson, but his use of it in this speech is balanced by references to economic terms that indict unbridled capitalism as the cause of pollution.[7] Nelson pairs the words *progress*, *consumption*, and *production* with *waste*, *garbage*, and *reckless* in order to condemn American's unwarranted faith in private enterprise to solve social problems at the same level of success with which it produced goods and services: "Private enterprise with enough technology and enough profit would . . . do our social planning for us too, set our national priorities, shape our social system, and even establish our individual aspirations." Nelson calls out the paradox of "the mindless pursuit of quantity" as the threat to the Earth's land, sea, and air. In addition to his acknowledgement of the fragility of the atmosphere, Nelson decries the threats to the world's oceans, rivers, and lakes posed by pesticides and unrestricted waste disposal. These two moves—laying the blame for environmental degradation at the feet of American capitalism and treating in detail the unity of humankind as one among many species dependent on the

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economic growth confront policies focused on emissions reductions, it is economic growth that will win out every time" (46).

Denialists construct the scene with terminology that communicates the basic belief that what is good for U.S. capitalism and FMFs, especially the fossil fuel industry, is good for all of humanity in all current and future scenes. Except that "the rest of humanity" is not actively and consciously placed inside the denialists' scene. Only U.S. interests are figured as motivating factors. The global scene matters only insofar as the planet offers never-ending scenes of resources for private corporations to exploit. Burke describes the market motive as not "merely scenic" (*GM* 353), but as interior to the agent, "a spontaneous rationale" of the agent's behavior (*GM* 353). "Money" is thus the God-term for the Free Market Fundamentalist, defined in Burke's terms, as "the ultimate motivation, or substance" of the FMF's essence. Although there is no concept of "market" in the natural order or in religious conceptions of heaven, Free Market Fundamentalists treat capitalism's alleged free markets as second nature, very close to an innate element within the human.

[7] In "Challenging Knowledge," Oreskes and Conway make the point that one of the unintended consequences of capitalism's triumph over communism is that it must now deal with the waste products—both voluminous and toxic—of its own success (79).

planet's systems—distinguishes the thrust of Nelson's speech from those of Nixon and Johnson.

Of course, as a senator and here as a proponent of a "teach-in" rather than the Leader of the Free World, Nelson enjoys some leeway to scold private enterprise and the American consumer for mindless productivity and mindless consumption, whereas Presidents Johnson and Nixon could ill afford to offend the sector of an economy capable of promoting or scuttling the GDP. In addition, the Office of the President restrains its power as much as enables it; the President must at least be perceived as approving of capitalism. This constraint does not bind Nelson. He is at liberty to call American economic progress a "paradox," on the one hand, but in the next breath, equate it with "two hundred million tons of smoke and fumes, seven million junked cars, twenty million tons of paper, forty-eight billion cans, and twenty-eight billion bottles." This mass of waste, in addition to the strip mining for coal, drilling the oceans for oil, and bulldozing landscapes for "unplanned expansion . . . [and] reckless progress . . . [creates] a hostile environment . . . [that is] poisoned, scarred and polluted." Nelson taps into the spirit of the counter-cultural revolution of the 1960s, citing a line by Pete Seeger, the avatar of protest music: " 'standing knee-deep in garbage, throwing rockets at the moon.'"

Not only does Nelson ascribe blame for environmental degradation to unbridled capitalism, he draws lines between the owners-industrialists responsible for the pollution and the laborer, office drudge, housewife, student, and "the black man living alongside the noisy, polluted truck routes through the central city ghetto" as representative victims of industry. Working on behalf of these victims are "responsible

scientists," reliable forecasters of the disasters of pollution, overpopulation, and consequent hunger. In other moves, Nelson gathers industrialists and laborers up together under the label of "Americans" in general, who have "bought environmental disaster on a national installment plan: buy affluence now and let future generations pay the price . . . [regardless of] the environmental consequences" that are not included in the sticker price.

However, according to Nelson, students are poised to lead the nation toward control of pollution, both on campus and in hometowns where citizen concern and constituents' requests will compel their elected representatives to pay attention to environmental issues. Moreover, Nelson is encouraged by the prospect of President Nixon's actions to reclaim the quality of the environment. But, even as Nelson acknowledges the economic costs involved—some $275 billion over thirty years to "control pollution"—he also compares this amount to the defense budget for only four years. In addition, Nelson lauds Congressional appropriation of $800 million for control of water pollution. Thus, Nelson places on a par with national security institutions and other legislative work, the need to care for the environment; "establishing quality on a par with quantity," as a goal for the future of the nation. Nelson's argument for an ecological ethic centers on the need to shift from a consumer society to a "new citizenship," bound to the rest of the globe with one question: "Is it good for people?"

However, the paradoxical uses of the term *ecology* in the twentieth century demonstrate competing and often hostile interests of free enterprise versus environmental protection. The term *ecology* is representative of a general post-World-War II trend away from social cooperation and toward individualism and capitalism,

setting the stage for the free market fundamentalism essential to the position taken later by President George W. Bush and other deniers of climate change in the period before the UNFCCC in 2009. This trend was evident in competing theories of species progression that developed in science departments at the University of Chicago and Harvard University from the 1920s through the Cold War period; indeed, the study of ecology emerged from the biology of plant and animal systems living contiguously, but in Nelson's era, the term came to represent a larger concept of harmonious living. But Nelson's use of the term was anticipated a generation before Earth Day. Kenneth Burke's 1937 admonition from *Attitudes toward History* makes clear that balance, not efficiency, is the essential feature in healthy ecological systems:

> Among the sciences, there is one little fellow named Ecology, and in time we shall pay him more attention. He teaches us that the *total* economy of this planet cannot be guided by an efficient rationale of exploitation alone, but that the exploiting part must itself eventually suffer if it too greatly disturbs the balance of the whole (as big beasts would starve, if they succeeded in catching all the little beasts that are their prey—their very lack of efficiency in the exploitation of their ability as hunters thus acting as efficiency on a higher level, where considerations of balance count for more than considerations of one-tracked purposiveness). So far, the laws of ecology have begun avenging themselves against restricted human concepts of profit by countering deforestation and deep plowing with floods, droughts, dust storms, and aggravated soil erosion. (*AtH* fn 150)

The terms *balance* and *cooperation* are at odds with the metaphors of economy prevalent in more conservative discussions of the environment in Burke's time, in Nelson's, and today, especially in conversations dominated by free-market fundamentalists (FMFs), a term employed by political commentator George Soros to describe proponents of unregulated capitalism as the fundamental principle on which solutions to all political, social, and economic problems are built ("The Worst Market Crisis in 60 Years"). Both Nelson and Burke—a generation earlier—decry the imbalance of private interests over public good.[8] Nelson's emphasis is on *good*, as in *moral soundness*. He moves from the consideration of American acceptance of an ecological ethic to world peace, this by means of mutual recognition of the "common [environmental] heritage and concern of men of all nations . . . [as] the surest road to removing the mistrust and mutual suspicions that have always seemed to stand in the way of world peace." Moreover, Nelson argues, "wreaking havoc with this fragile ecological system" cannot continue to be the heedless payment for "new space for industry, commerce, and subdivisions."

To argue for smaller-slower-less is to come up against the engines of the gross national product, Nelson argues, that must give way to "gross national quality." The posing of these two sides suggests that they are mutually exclusive: Americans cannot

[8] The Dust Bowl disasters of the 1930s provided exigence for Kenneth Burke, Malcolm Cowley, and others to write about ecology in *The Nation*, *The New Republic*, and *The American Journal of Sociology* (Seigel 389). In a 1934 book review for *The New Republic*, Cowley provides a definition of ecology: "the factors of a life community formed of several species existing in a common environment. In any such community—including the worldwide community that man inhabits—the growth of one species is limited by the growth of others" (107). The thrust of Cowley's definition is toward understanding ecology as interdependent systems whose common interests rely on balanced growth.

have—must reject—economic prosperity at the cost of the environment. Although the first Earth Day succeeded beyond the event as Nelson conceived it when students, professors, scientists, clergy, and politicians of all stripes participated in it, Nelson's argument against private enterprise's excesses forecasts the dominant polarities for the next four decades.

For Gaylord Nelson, the heroes of the new ecological ethic are students in universities whose leadership and participation in the Earth Day teach-in would herald adoption of new values for the environment: Every human will care for the proximal and the distant environment because survival of all species depends upon such care.

President Richard Nixon: Caring for the Whole Environment with a New Agency

Even after little mention of the environment during the 1968 presidential campaign, and only a few months into President Richard Nixon's first term, the following change had occurred in the public concern for the environment, described by John C. Whitaker, President Nixon's associate director of the White House Domestic Council for environment, energy, and natural resources policy:

> Fully a quarter of the public thought that protecting the environment was important, yet only 1 percent had thought so just two years earlier. In the Gallup polls, public concern over air and water pollution jumped from the tenth place in the summer of 1969 to fifth place in the summer of 1970, and was perceived as more important than "race," "crime," and "teenage" problems, but not as important as the perennial poll leaders, "peace" and the "pocketbook" issues. In the White House [advisers to President Richard Nixon] pondered this sudden surge of public concern about

> cleaning up America and providing more open spaces for parks, and a heightened awareness of the necessity to dedicate more land for wildlife habitat.

President Nixon thereafter recommended consolidation of responsibilities for reducing pollution from the 44 agencies across 9 departments to a new agency the Environmental Protection Agency, announced in his "Special Message from the President to the Congress on 9 July 1970."

The purpose of President Nixon's speech was to announce a shifting of duties into a new division with the express purpose of restoring and protecting the environment. The goal of the speech was to increase support for environmental protection, as well as making the process more efficient by eliminating redundancies among agencies and creating bureaucratic mechanisms for pollution reduction. About 80% of the 1834 words of the speech are dedicated to the functions, components, and advantages of the Environmental Protection Agency; the balance of the speech, to the National Oceanic and Atmospheric Administration. Some reluctance in the tone of this speech, as well as an outright condemnation of bureaucracy in his speech from only a few weeks earlier calling for the National Environmental Policy Act, demonstrates that Nixon was loathe to add to the federal system by creating another agency to oversee environmental action, even in the face of unaddressed environmental crises: "No matter how pressing the problem, to over-organize, to over-staff, or to compound the levels of review and advice seldom brings earlier or better results." Even so, Nixon's challenge to Congress was that "the 1970s absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its water, and its living environment"

("Statement about the National Environmental Policy Act"). However, in spite of the President's ideological opposition to expanding the federal government, by July 1970, he had accepted the recommendation of Roy L. Ash, Chair of the President's Advisory Council on Executive Organization (later known as the Ash Council) to create an independent agency to oversee the federal government's activities (EPA, *Ash Council Memo*).

Nixon frames the argument for a new federal agency with two terms: the totality of the *environment* as a system and the supremacy of *pollution* as the foremost problem. He acknowledges that the "environment must be perceived as a single, interrelated system," the complexity of which mandates the consolidation of responsibilities in one agency, a single, dedicated federal entity. Establishing the Environmental Protection Agency was meant to "arrest environmental deterioration," primarily by controlling *pollution*, the problem he mentions twenty-six times in the speech. As much as this address advocates a unified effort on behalf of the environment, that very year Congress had already established the Council on Environmental Quality (CEQ). The President expected the two agencies to work closely together, the CEQ as an advisory group on all aspects of environmental quality, the EPA as the operational organization, concerned only with abating pollution. Nixon makes two other arguments for centralizing environmental protection. The first is that every department and agency of the federal government affects and is affected by the environment, but has its own goals to pursue, and so may not have their agency's environmental impact as a first priority. Second, an independent agency whose sole purpose is to set standards for protecting the environment would be subject to Congressional and public scrutiny, especially as its

decisions would affect other departments in Washington. Though Nixon sees the principle of scrutiny as an advantage, later partisans use this principle to attack the scope of the EPA's purview, as in the unsuccessful argument to the 2013 Supreme Court that the EPA did not have the right to name carbon dioxide a "pollutant" subject to EPA control ("EPA Climate Action Upheld").

In addition to declaring the establishment of the EPA, President Nixon recommended building slowly toward practical solutions, "a step at a time—and thus to be sure that we are not caught up in a form of organizational indigestion from trying to rearrange too much at once." Here again, he is hedging against the conservative wing of his party who might see any expansion of government as excessive, especially if the regulations suggested by the EPA impinged on the development of business and industry. In the light of debates two decades later about the science of environmental protection, it is noteworthy that Nixon describes the EPA as the mechanism by which knowledge acquired at the level of a federal agency would "effectively ensure the protection, development and enhancement of the total environment." In other words, the EPA's own research and research situated in various states would together support the acquisition of knowledge to support "anti-pollution programs." But, again, this speech indicates that the primary problem with this total environment as an "entire ecological chain," was systemic pollution, namely "smoke and chemicals, . . . [and] solid wastes."

President Nixon enlarges the scene of environmental protection to encompass the whole nation, rather than isolated local sites of pollution. As to the scope of the problems as conceived by the President, he ends his declaration by urging acceptance of

the new agency that will "insure that the nation's environmental and resource protection activities" are coordinated.[9] Significantly, Nixon declares that America has "national environmental goals," not only national security or economic goals. Only in the final paragraph of the proclamation does the President broaden the scope of the problems facing the US: "The Congress, the Administration and the public all share a profound commitment to the rescue of our natural environment, and the preservation of the Earth as a place both habitable by and hospitable to man." Here at last does the President acknowledge that his nation is one among many on a planet called Earth, which is actually the habitation for all humankind, not Americans only.

As with President Johnson's speech in 1965, President Nixon, a Republican after all, continued the tradition of bi-partisan work to control pollution, and now, to care for the environment. Care for the environment was one issue both parties could agree on. However, by the middle of President Jimmy Carter's term and throughout those of Ronald Reagan, the bipartisan ethic had vanished, replaced by a polarization that continues today, the one that served as the warrant for Gaylord Nelson's argument: Protecting the environment means sacrificing a robust economy.

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[9] Whitaker recalls President Nixon's accomplishments through the EPA: "New clean air, water, solid waste, and pesticide laws, coastal zone management planning seed money, new national parks, including the great urban parks in New York City and San Francisco harbors. In addition, Nixon ordered federal agencies to shed spare federal acreage that would be converted into parks and recreation areas, especially in urban areas. More than 82,000 acres in all 50 states were converted into 642 parks, the majority of them in or very close to cities, really bringing parks to the people. More money was dedicated to buying wildlife habitat; Congress passed Nixon's controversial proposal to protect endangered species. Nixon's executive orders restricted ocean dumping and tightened environmental standards for off-shore oil drilling."

Scene Two: 2001-2002

Deflecting Attention Away From the Environment

Although conservative resistance to climate change legislation did not reach the peak of its power until 2009, such resistance began much earlier. In fact between 1970 and 1988, Presidents Carter and Reagan confronted national environmental crises that equaled the fiascos of the oil embargo and the hostage-taking in the Iranian embassy. These crises included a growing awareness of the problem of climate change, expressed in part by the founding of the journal *Climate Change* in 1977, whose purpose was to communicate in clear English prose, according to Stephen H. Schneider's editorial launching the publication, the interdisciplinary nature of climate change. By the time Carter left office, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or the Superfund Act, provided a means for cleaning up the environmental disasters at Three-Mile Island and Love Canal. However, as Rothman argues, President Reagan entered office with a very different vision of the responsibilities of the federal government and a much reduced role for the EPA: "Under Reagan, the federal government all but halted the accelerating enforcement of the mandate to clean up toxic waste hazards. . . . [E]nforcement of toxic waste laws was decidedly not a priority" (Rothman 158). In fact, during the Reagan years, there were few enforcement lawsuits and, according to Rothman, "almost no cleanup of toxic sites" (159). However, in spite of determined work from 1981 to 1988, by Reagan and his Secretary of the Interior James Watt to dismantle federal environmental protections in the name of economic development and local—rather than federal—control, public

concern for the environment and enrollment in activist groups more than doubled (Rothman 180). By 1988, in the middle of a disastrous heat wave and drought that affected the whole country, the US Senate Committee on Environment and Public Works (EPW) held hearings on an emerging concern with climate change, but no legislation survived past the committee stage. [10] By the time President George W. Bush takes office in 2001, it appears that action on the stage of global warming legislation was closing down.

Except that President Bush's own rhetorical blunders reopened the drama.

President George W. Bush: Rhetorical Blunders

Soon after President Bush assumed office, Frank Luntz, a language consultant for the Republican Party since the late 1980s, began to construct a new perception of the

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[10] The Senate Subcommittee on Environmental Protection of the Committee on Environment and Public Works conducted hearings during the 101st Congress convened only three months after President George H. W. Bush took office, appointing William Reilly as Administrator of the EPA. In that capacity, Reilly testified for the Senate Subcommittee on Environmental Protection.

The most remarkable element in the hearings occurs in the language of uncertainty in Reilly's written testimony. The language of uncertainty is especially pronounced in his conclusion:

> *Uncertainties* regarding the magnitude and timing of climatic change are *large*, but there is a growing consensus in the scientific community that global warming, *perhaps* of significant degree, due to anthropogenic emissions of greenhouse gases is *probable*, and rapid climatic change over the next century is *possible*. Within EPA's scenarios, if no policies to limit the emission of greenhouse gases are undertaken, the equivalent of a doubling of CO2 is *estimated* to occur between 2030 and 2040, and the earth warms by 2-6 degrees C by the end of the 21st century. (43, italics added)

Here Reilly appears to bend over backwards to hedge against an accusation of environmental alarmism or hysteria. The first US legislative attempt to stabilize carbon emissions to ward off global warming was Democratic Senator Al Gore's 1992 *Global Climate Protection Act*. The bill died in committee (United States Congress. Senate Subcommittee on Environment and Public Works).

Party in relationship to the environment. Essentially an epistemological problem, the difficulty for the President's party was to change the beliefs the public held about the Republican Party's regard for the environment. The central document in this scene is the 2002 Frank Luntz memo "The Environment: A Cleaner, Safer, Healthier America," provided as a vocabulary lesson to Republicans in order to change the public's conception of their positions on the environment. Two rhetorical missteps fed the general public's suspicions about Republicans' care for the environment, two occasions of embarrassment that required Luntz's expertise. The first rhetorical misfire occurred a few months into President Bush's administration, immediately after the President rescinded former President Clinton's last-minute reduction of arsenic in the public water supply, from 50 parts per billion to 10 parts per billion. Some media, such as the Organic Consumers Association, framed President Bush's decision in terms of actively putting arsenic into the water supply—"Bush Mandates Arsenic in Your Tap Water"—an inaccurate characterization of the decision but immediately inflammatory to the public (Massey) and embarrassing to the President. President Bush quickly rescinded his recision.

The second awkward situation was created by the categorical and brusque language with which President Bush dismissed the Kyoto Protocol. In a March 2001 "Letter to Members of the Senate on the Kyoto Protocol on Climate Change," the President's first action on the Protocol, he accepts as a "clear consensus" the 1997 bipartisan Byrd-Hagel Resolution recommending against ratification of the Protocol by a 95-0 vote, according to Greg Kahn's analysis of the Bush Administration and the Kyoto Protocol (566). The Senate's disapproval was based on the disparities in carbon

emissions mandated for industrialized nations, but delayed or excused for developing nations. In the Byrd-Hagel Resolution, the economic and inequity arguments dominate: "[T]he level of required emission reductions could result in serious harm to the United States economy, including significant job loss, trade disadvantages, increased energy and consumer costs." Kahn argues that President Bush's 2001 letter caused the Administration embarrassment because, just days before, Christine Todd Whitman, then EPA Administrator, had announced that the Administration was considering mandatory carbon limits, a position she retracted immediately after the President's March 13 letter (566). Exacerbating the embarrassment, President Bush's June 2001 tour of Europe, designed to defend his position on the Kyoto Protocol, elicited protests at every destination (Kahn 552). At the time, the Kyoto Protocol was the only multilateral, if flawed, treaty designed to stop global warming. It did not help the President's international reputation, nor did it clarify the policy direction he would take, that his own White House Working Group on Climate Change (WHWG) "approved curtailing climate change" (Kahn 552). In other words, the WHWG acknowledged the fact of climate change and the need to limit carbon emissions, but, consistent with the President's pro-business stance, the WHWG endorsed the limitations if accomplished "by using voluntary corporate standards, research, and tax incentives, instead of implementing strict emission controls" (Kahn 552). *The Times of London* described President Bush as a "smug, parochial, oil-loving President," according to Kahn, for withdrawing the United States from the Kyoto Protocol.

Certain terms in President Bush's letter muddle his message. On the one hand, he appears to acknowledge the reality of global climate change, but on the other, argues

that "carbon dioxide is not a 'pollutant,'" at least according to his interpretation of the existing Clean Air Act, a position overruled in the 2012 Supreme Court decision ("EPA Climate Action Upheld"). In addition, the letter argues for delay in addressing global climate change, "given the incomplete state of scientific knowledge of the causes of, and solutions to, global climate change." The President's priorities are "the environment, consumers, and [the] economy," these last two emphasizing his faith in market incentives and commercial development of technologies, all of which take time to develop. Thus, President Bush keeps the door open for Frank Luntz's instructions to the Republican Party to strengthen the public's resistance of federal climate change action as long as it believes that potential actions would be based on incomplete or inaccurate science and cause them an economic disadvantage.

Frank Luntz's Memo: Turning Republicans Green

Into this scene of public relations difficulties, Frank Luntz entered to control damage and to repair the caricature of Republicans as "seemingly in the pockets of corporate fat cats who rub their hand together and chuckle manically [*sic*] as they plot to pollute American for fun and profit" (Luntz 132). Although the Luntz memo has gained considerable notoriety among environmentalists for its instructions to Republicans attempting to communicate with their constituents about the environment, the memo does not argue that global warming is a myth. Instead, Luntz first coaches Republicans to make a values argument to convince the audience that conservative politicians actually care about the environment. As in Burke's theory of terministic screens, Luntz had to work hard to deflect public attention away from the GOP's anti-environment reputation and away from the term *global warming* by selecting a new

ethos that demonstrated Republicans to be environmental advocates, but with common sense, unlike the treehuggers of Gaylord Nelson's era.

In practical terms, Frank Luntz's workshop for Republicans on how to frame their climate change comments is a scene closely controlled within which his memo acts first as agency, but which in the hands of environmentalists, becomes an agent of wholesale condemnation of the conservative movement against climate-change legislation. Environmentalists have only to gesture to "the Luntz memo" and various blogs and activist sites, such as *Think Progress.org*, take up the reference as a synecdoche of all that works against "saving the planet." It sets up the terminology to be employed in the circumferences—or scenes in which Republicans are next involved. They learned from him how to draw the circumference of the scene in such a way that the subject of climate change is circumscribed as they wished it to be in one of four views: either mechanistically, as a function of the natural order; or unverifiable, since the science is wrong or untrustworthy; or beneficial, by virtue of the need for CO2 for life on earth; or nefarious, as an attempt by the environmentalist lobby and the UN to control and then ration carbon, and thereby exert control as a totalitarian world government.

In order to capture an American audience suspicious of any Republican comment on the environment, according to Luntz, a speaker must engage the audience in his personal story, as exemplified in this template speech Luntz provides:

> I want to join you today in a pledge to preserve and protect the special places God gave us. . . . Our public lands and waters, and all the private habitats and nature preserves, remind me of times spent with my

> family—as a child, discovering a love of the outdoors my parents and grandparents instilled in me, as a young adult, taking walks in the park with a special someone, and now as a parent, teaching my own kids to identify species of animals and plants, having a picnic, or just throwing or kicking a ball around in an open field. I want those places to still exist when my children grow older and teach their own kids the values of our family for another generation. (146)

According to Luntz's instructions, "A compelling story, even if factually inaccurate, can be more emotionally compelling than a dry recitation of the truth" (132). In this memo, the template speech creates the story in which the characters are Republican, God-fearing, nature-loving family *men*. Every symbol in this drama of a lifetime spent in the outdoors is employed in this speech, from generational signs to the meme of children frolicking with the butterflies. Nothing about climate change or global warming, only a mention in this speech that American families will "confront rapid change" (146). Luntz's whole effort here is to create the ethos previously missing from the Republican portfolio: a Republican tree-hugger. But with a caveat. This tree-hugger knows the difference between a Washington devoid of common sense and a set of responsible protections of "parks and open spaces that conserve nature and the environment as a legacy for the next generation of Americans" (146). The warrant behind this argument is that the current environmental regulations do not conserve and protect vulnerable "sacred places," but instead, put them and America's whole legacy of "rugged individualism, sense of adventure, and pioneer spirit" at risk. The subtitle of the speech "A Republican Speech about Protecting the Earth" defines its purpose, which is to

convince the public that Washington's (read as "Democrats'") understanding of protecting the earth is anti-American, anti-family, and anti-God, but Republicans have a better way forward.

Luntz's second move is to teach his audience how to frame their message in terms of the following polarities in order to convince the suspicious American public of Republicans' "good intentions and . . . sincerity" about the environment (134), because, as Luntz says, "facts only become relevant when the public is receptive and willing to listen to them" (133). In the left column are the terms with which Luntz describes Democrats and environmentalists. On the right is the vocabulary list Republicans must adopt in order to change the public's perception of their relationship to environmental policies:

Democrats favor these:	**Republicans must counter with these**:
Worst-case scenarios	Realistic assumptions
Environmental extremists	Caring Republicans
Environmental extremism	Fair balance between economy and environment
Environmentalist	Preserver and protector of the outdoors
Bureaucratic meddling	Local control
Intrusive federal bureaucrats	Responsible, sensible Republicans
Needless, excessive redundant regulations	Common sense regulations
International treaties, such as the Kyoto	America first, especially state and local

Protocol entities first.

The terms Luntz recommends to describe environmentalists are intended to scare an audience by reminding them of the caricature of a wild-haired, pine-cone chomping tree-hugger who does not share their values of common sense, freedom, and nationalism. Republicans, on the other hand, describe themselves as assured, calm, and patriotic. Thus, instead of addressing global warming directly, Republicans are to first create a new identity to replace the negative stereotype, and then argue for preserving and protecting the environment, more wisely and effectively than Washington is currently doing. The terminology Luntz uses to characterize the Democrats' penchant for ineffective regulations indicates that true Americans know better than any bureaucracy in Washington how to take care of their local parks and waterways. In fact, Luntz counsels Republicans to tap into a dearly held belief in the American psyche, "the idea that progress is being frustrated by over-reaching government" (136). However, given the choice between cutting regulations and protecting the environment, Americans, according to Luntz, will choose protecting the environment, a priority they must witness in the Republican message.

Luntz does not go so far as to claim an opportunity to correct inaccurate science, but instead, protracts uncertainty in the public mind about climate change science. The middle third of the sixteen-page memo addresses how to win the global warming debate by "Redefining Labels" (142). A Republican pro-environmentalist should be called a "conservationist"; "climate change" is less frightening than "global warming"; and, instead of "preservation," Republicans should talk about "conservation" (142). In

essence, Luntz is coaching Republicans to change their talk so that the public sees them promoting the positive—"use our natural resources efficiently and replenish what we can when we can"—rather than just "against existing environmental regulations" (142). The most important term in the Republican arsenal is "lack of scientific certainty" and "no consensus" (137) and "*commitment to sound science* . . . and common sense" (Luntz's italics, 138). Luntz makes a curiously frank admission about global warming science: "*The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science*" (Luntz's italics, 138). As long as the American public believes that the science is unsettled, they will listen to Republican calls for more research, a lengthy process if the goal, as Luntz asserts, is to take legislative or treaty action "only with all the facts in hand" (137). As I stated in the previous section, no scientist in climate research, or any other field of science for that matter, would claim that he has *all* the facts about a particular situation even though the audience may wish he did. Luntz—and all climate change deniers, as I will address in chapter 4—takes advantage of the fundamental uncertainty that is central to all science and plays up the uncertainty factor in his coaching. As long as the science is uncertain, Luntz argues, there is no justification to act, and certainly no justification for federal regulations.

The role of science is to be the hero, the savior, with patiently developed, homegrown technologies, not foreign treaties and intrusive regulations. This particular argument appeals to Americans' penchant to get their backs up over the prospect of other countries trying to tell us what to do, and, as I will demonstrate in chapter 4, provides a particularly effective argument for some Americans and opponents of the UN

ready to condemn any efforts spearheaded by the United Nations. This America-first appeal extends, according to Luntz to the "emotional home run," an appeal to Americans whose first loyalty is to their own nation, not to any purported "good of humankind" if it disadvantages them: Treaties that bind America, but not China, Mexico, or India are patently unjust and won't be supported by the American public. If Luntz labels this the homerun, it indicates his belief that American patriotic feeling overrules almost every thing else. But, as Luntz argues, Americans have faith in home-grown [*sic*] technology and "*voluntary* innovation" (Luntz's italics) to solve any problems in the environment. This appeal in particular will be more effective, according to Luntz, than an economic argument to be made after these previous points and only in specific terminology of the economic costs to senior citizens on fixed incomes and the poor in general who can ill-afford food and fuel prices driven higher by the Kyoto Protocol.

The dominant textual feature of this section of the memo is Luntz's use of seven text boxes, titled alternately "Language That Works" and "Words That Work" (138-41). In a move that goes beyond providing talking points, each of these boxed quotations is available for lifting verbatim into Republican speeches, newsletters, or press releases. The sixth box emphasizes American technologies already at work, but it also makes an unsupportable claim about the amount of "pollution" America produces:

> As a nation, we should be proud. We produce a majority of the world's food, a large majority of the world's technology, and virtually all of the world's health and scientific breakthroughs, yet we produce a fraction of the world's pollution. America has the best scientists, the best engineers, the best researchers, and the best technicians in the world. That is why

> we must assume a leadership role in conservation and preservation but we cannot do it alone. Every nation must do its part. (141)

Aside from the appeal to American exceptionalism, Luntz is supplying a falsehood as a talking point: In fact, in 2001, the United States emitted a total of 5601 million tons of C02, or roughly 18% of the total world's emissions ("CO2 Emissions: United States"). Granted, 18% is a fraction of the world's carbon pollution, but the emissions data, as well as this data from *Global Population Growth* would have been readily available to Luntz, his audience, and the American public in 2001: "Although the U.S. population is only 4% of the world total, it consumes 25% of the total resources, and produces more carbon dioxide and garbage per person than any other nation" (Lindsay). In this case, Burke's theory of terminological screens is especially helpful in pulling back the veil to show how issues are constructed and perceived. Even though it is deceptive, Luntz's term *a fraction* would translate to a receptive audience as *small fraction* rather than the more accurate proportional explanation. Luntz has selected a term to reflect the position that America's emissions are not so very bad after all, deflecting responsibility for global warming away from the United States and toward other nations in a sweeping gesture that elevates American accomplishments while reducing the impact of the waste products of our successes.

In sum, then, Luntz's advice is to debunk regulations in favor of Americanism, to cast doubt on the trustworthiness of climate change science, and to advocate conservation of accessible recreation locales, without denying that global warming is a fact. He resists the terms *global warming* and *environmentalism*, substituting *balance* and *common sense*, *family* and *outdoors*. In doing so, Luntz shifts the scene of global

warming debate away from the physical changes to the planet toward the creation of a new ethos for his Republican flock. They must be seen by the American public as the capable and trustworthy, level-headed guardians of not only jobs and families, but of the earth as well.

Scene Three: The United Nations, 1972-2009.

Maurice Strong Begins the United Nations Climate Change Conversation

Parallel to the scenes of environmental debate occurring in the United States, focused discussions about the global environment began in earnest in 1972 at the United Nations Stockholm Conference, reflecting the international awareness of threats that had motivated US leaders in the same period and generated the energy for the creation of the IPCC. Two documents—the opening statement by Secretary-General to the Conference Maurice Strong and the Constitution of the Stockholm Conference—employ certain terms as instruments to both widen the UN's scene of environmental repair and focus the Stockholm conferees' attention narrowly enough to motivate action. The language in Strong's opening statement circumscribes four aspects of work on the environment to justify UN participation, but, inadvertently, it also provides the terminology with which climate change deniers in the next decades attack the UN's efforts. First, Strong draws a circumference around humankind as a unit with shared interests: "No one nation or group of nations commands the air and water of this planet. If we are to ensure their survival we have to act as the whole *community of man* (sic)." Then, in a move that will have implications for future climate change denialists opposing the UN, Strong includes economic development in the territory of the UN's work on the environment; in other words, from the beginning of the long legacy of the

IPCC, continued *economic development* according to the needs and capacities of individual nations is the starting point of deliberation on environmental policy. Third, Strong includes both *scientists and policy makers* in his construction of the scene of the UN's environmental initiative, indicating the importance of their working in concert, rather than in isolation, or worse, in conflict over how to protect Earth as habitat. Finally, in comments that prove prescient about the amorphous nature of the United Nations as an institution, Strong also acknowledges the *incomplete understanding* of an ill-defined problem of humanity's capacity to "impair" the environment, that, while deserving of international cooperation, will prove so complex as to thwart immediate solutions. The Constitution of the Stockholm Conference reinforces this conception.

By expanding a sense of purpose over time, Strong first draws the circumference of environmental concern wider than an acute and localized adversity, such as an incident of water and air pollution: "Our purpose here is to reconcile man's legitimate, immediate ambitions with the rights of others, with respect for all life supporting systems, and with the rights of generations yet unborn." His hope rests in the attitudes of a generation of young people whom he observes as "beginning a revaluation in attitudes and values." Thus, Strong scolds the 1972 audience for thinking of human enterprise "in too short a time perspective," urging them to reconceive of the UN's environmental work in terms of a limitless future. While no doubt Strong wished to convey optimism for the "long journey," his forecast is also frightening, as any ill-defined and enormous task is terrifying, and, unfortunately, the open-ended nature of the task he assigns to the UN leaves the institution open to future criticism of rapacious

ambition even though that extrapolation is far-fetched and illogical, as I will demonstrate in chapter 4.

In a similar move, Strong redraws the circumference geographically. He argues that the planet faces a policy crisis born of humanity's propensity for "making social decisions on too narrow a base." Humans, Strong argues, look to the immediate time and place. Their local concerns are to clear forests to create farming and grazing spaces where they fertilize and irrigate their crops. The results are perhaps unintended, but, echoing Gaylord Nelson, Strong enumerates the unintended consequences of countless decisions to develop and grow without forethought of the environmental damage:

> No one decided to poison the Baltic—or any other of our polluted and dying waterways. No one decided to destroy millions of acres of productive soil through erosion, salination, contamination and the intrusion of deserts. No one decided to dehumanize life in the greatest cities of the world with crowding, pollution and noise for the more fortunate and with degrading squalor for the rest. We did not intend either these or the many other destructive, dangerous and unhealthy and unaesthetic consequences of our past activities; but these are what we have. . . . [Moreover] if we use our present standards as an indication of what will be, three decades from now, at least half of humanity will still be enduring a life of uncertain work, permanent undernourishment, poor health, poor housing and illiteracy and insufficient skills.

Urging the audience to re-imagine their present standards, Strong expands the concept of how to live for the long journey. Oddly, though, in his opening statement, Strong does

not mention pollution incidents, such as those Presidents Johnson and Nixon address, but he suggests instead the three priorities of ocean pollution (but not rising ocean levels), access to disease-free water (but not drought exacerbated by global warming), and unfettered urbanization. Thus, Strong has redrawn the circumference of the UN's mandate to include the environment as a totality encompassing the whole condition of man, unfortunately for the UN's work toward the IPCC, a scene almost incomprehensible in scope.

In addition to the broad and undefined scope of its task, Strong addresses the necessity to advocate for environmental policies that accommodate economic growth and hold inviolable the sovereignty of individual nations. Given the debate in the next four decades about threats to economic development and to national sovereignty, these assurances during the Stockholm Conference are significant. The scene Strong outlines assumes that no nation can protect its environment or contribute to carbon emissions controls if that nation is destitute. Moreover, Strong's address and subsequent UN declarations make quite clear its fundamental assumption that member states will remain independent and sovereign, not suzerains of a world government. Far from advocating a world government that might threaten the national sovereignty, Strong acknowledges the political reality of "governments operating as sovereign national states"; however, the environmental reality is that global conditions and local values and resources are, at the same time, both mutually dependent and almost infinitely diverse. On the one hand, Strong recognizes that attempting a one-size-fits-all philosophy is as unrealistic as is inaction in the face of global deterioration. On the other, Strong advocates *controlled* growth that is wise, respectful, and visionary enough

to enrich humankind. While Strong makes explicit his belief that "there is no fundamental conflict between development and the environment," he argues that a new synthesis between human welfare and the environment must be created. Such harmony, according to Strong, requires the planet's wealthy minority "to make the most profound, even revolutionary changes in attitudes and values." To enrich the lives and enlarge the opportunities of all humankind is to invoke their fear of international cooperation for something as abstract as "the common good." Thus, Strong advocates the "central importance of accepting the notion of ongoing process, of continuity, of adaptation, of steady evolution, in perception, in organization, in decision making and in action to protect and enhance the human environment. In a very real sense, the process is our policy." The sad irony of this acknowledgement is that subsequent layers of UN agencies and initiatives—in the name of the process and progress toward environmental sustainability—have proliferated over four, not three, decades ending in the wreckage at Copenhagen. Neither Strong, nor his colleagues at the UN, intended the complex process of work toward environmental protection to forestall progress toward their goals, but the reality has been few actual achievements toward reducing carbon emissions.

The third scene Strong delineates includes both scientists and policy-makers as actors. If they do occupy the same scene, political leaders must come to use the scientist's language as their own instrument in order to make change at the national level. Strong defines this shared scene in vocabulary at once expansive and imperative: The scene must incorporate a "direct working relationship between the intergovernmental community and the community of science and technology. . .[so that]

policy makers and administrators have ready access to practical scientific guidance and that scientists . . . are actively involved in the decision making process," rather than operating separately and in isolation. Strong particularly indicts the separation of these groups in the current dilemma: "The institutional separateness has played a major part in creating the situation, which we are now facing and we must resolve to eliminate it. If it is not eliminated, and if we continue as we have in the past, no profound or lasting environmental reforms can be achieved." In essence, Strong argues that the failure of scientists and policy makers to share a common glossary has long contributed to the failure of humankind to change its behavior. For, as Burke has it, the terms chosen by agents in a scene both create the scene and motivate action out of that scene.

However, Strong's mandate that scientists and policy makers share terminology means, in practice, that it be the scientists who explain theories and highly technical evidence in everyday speech. But, whether communicated to non-scientist policy makers or to a cadre of specialists, science emerges from uncertainty, dwells in it, promotes it, and may temporarily suspend it on a very specific point, but returns to uncertainty as its motivating principle. No uncertainty? No need for research. And, of course, as is true of any complex problem, the complexities of global climate change leave plenty of room for uncertainty. Thus, two problems arise from this line of Strong's argument: Scientists must translate their technical vocabulary into terms a policy maker understands and can use, but those same scientists must maintain the integrity of the scientific processes, which will be uneven and uncertain, qualities no policy maker wants to communicate to legislative bodies or to constituents. The role of the UN's IPCC was to bridge the gap in understanding between scientists and the lay

audience with a special burden to communicate to policy makers so that nations' climate change policies would begin to limit carbon and other green house gas emissions. Before I return to the IPCC's particular mandate, as determined by the resolution that established it, I will examine one other problem of uncertainty inherent in the identity of the United Nations itself, especially as expressed in the Constitution of the Stockholm Conference.

Uncertainty as a Threat; Bureaucracy as a Stumbling Block

Within two years of the creation of the EPA and the first Earth Day, the United Nations took action on climate change by creating a new international scene for negotiations to reduce carbon emissions, beginning with the 1972 conference in Stockholm. However, the problems inherent in the UN are apparent from the very beginning of this scene. The Constitution of the Stockholm Conference reveals the terminology defining the contingent nature and slow pace with which the UN moved toward the Kyoto Protocol and other climate change work. A survey of the milestones in the UN's environmental work leading to the creation of the IPCC (See Table 1 "UN Timeline") suggests the growing urgency of its attempts to address climate change but also illustrates the almost insurmountable, cumbersome bureaucratic freight carried by all UN bodies. The elements in bold indicate the hierarchy from which the International Panel on Climate Change emerged and the bureaucracy to which it belongs.

Table 1. UN Timeline[11]

1873	Founding of the **International Meteorological Organization (IMO)**
1950	IMO creates the **World Meteorological Organization (WMO),** a

[11] Dates and events are from the United Nations website, *un.org*.

United Nations specialized agency

1972 The **UN Conference on the Human Environment (the Stockholm Conference**); Maurice Strong is Secretary General of the Conference.

1972 The Stockholm Conference creates the **United Nations Environment Programme (UNEP)** to coordinate UN environmental activities. Maurice Strong is the first Executive Director of UNEP.

1979 The WMO's first **World Climate Conference (WCC-1)** takes place in Geneva, Switzerland: "a conference of experts on climate and Mankind" (http://library.wmo.int/opac/index.php?lvl=author_see&id=5288)

1988 The **WMO and UNEP establish the Intergovernmental Panel on Climate**, the primary body through which scientific data about climate change is vetted and disseminated.

1990 IPCC publishes the first **Assessment Report on Climate Change** (FAR), beginning with the section on the scientific assessment of climate change. IPCC and the second World Climate Conference call for a global treaty on climate change. The UN General Assembly begins negotiations on a **framework convention**.

1992 At the Rio de Janeiro Earth Summit, the Intergovernmental Negotiating Committee (INC) adopts the **United Nations Framework Convention on Climate Change (UNFCCC)**.

1994 The UNFCCC, ratified by 195 countries (including the United States), enters into force to stabilize greenhouse gas concentrations.[12]

1995 The second **Assessment Report on Climate Change (SAR)** includes sections on climate change science; impacts, adaptations, and mitigation of climate change; and economic and social dimensions of climate change

1997 The Kyoto Protocol is formally adopted in December. The Secretary General of the UN creates the **United Nations Development Group** (UNDG), a consortium designed to improve the effectiveness of UN development activities at the country level. The **WMO is a member of the UNDG**. The United States signs the Kyoto Protocol under President Bill Clinton's administration, but President George Bush refuses to submit the document to the Senate for ratification.

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[12] The goal of the 1994 Convention was to "stabilize greenhouse gas concentrations 'at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.' It states that 'such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner'" ("First Steps to a Safer Future").

2001	The IPCC **Third Assessment Report (TAR)** begins, as did # 1 and 2, with the scientific aspects of climate, followed by sections on vulnerability, consequences, and options for limitation and mitigation.
2002	At the Earth Summit in Johannesburg, South Africa the scientific community is called on explicitly to provide the scientific basis for mitigating anthropogenic interference with climate.
2007	The IPCC **Fourth Assessment Report (AR4)** declares that global warming is unequivocal and "very likely" caused by anthropogenic greenhouse gas emissions. It beings with the scientific basis, followed by impacts, adaptation, and mitigation.
	The **Bali Climate Change Conference** produced the Bali Road Map of steps toward carbon emission reduction commitments in anticipation of the Kyoto Protocol's expiration in 2012. The goal of the Bali Road Map was to create the process for agreement at the 2009 Copenhagen Summit.
2009	The **Copenhagen Accord** is drafted in December in Copenhagen. "This was **taken note of** by the COP. Countries later submitted emissions reductions pledges or mitigation action pledges, all non-binding" ("Essential Background"). The action "to take note of" is essentially no action at all. It is the equivalent of a nation acknowledging that the document exists, but is neither binding nor enforceable.

Representatives of twenty-seven nations on the Stockholm Preparatory Committee met in March 1970, February and September of 1971, and March 1972 to *consider* topics for the Conference, to *consider* the organizational structure, to prepare a *provisional* agenda, to *consider* a *possible* declaration on the human environment, and "to *recommend* the establishment of an intergovernmental working group on the declaration" (United Nations, "Constitution of the [Stockholm] Conference" paragraph 6). The last item in the Constitution, "the establishment of an intergovernmental working group," is the key signal that an entity will come out of the Stockholm Conference whose express purpose is to address "impairment of the human environment." The Preparatory Committee's preliminary examination of elements

contributing to the impairment, includes the following topics, identified by eighty-six UN nations, a variety of agencies, NGOs, and individuals: "marine pollution, monitoring or surveillance, pollutant release limits, conservation, soils, training, information exchange and gene pools" ("Constitution of the [Stockholm] Conference" paragraph 6). This scattershot description indicates again an insufficient understanding of what problems are most threatening, as well as an omission of the problem of climate change.

In somewhat of an understatement, Strong concedes that "for the time being, we do not yet have a clear and agreed set of criteria for identifying priorities; this itself might well be a priority concern for the next dimension of our work." Strong's acknowledgement of the tentative start to the Stockholm Conference is indicative of the stop-and-start nature of the UN efforts. Granted, any new enterprise by an agency as complex as the UN may understandably require some time to establish its identity and mission. On the other hand, if the survival of the whole community of humankind be at stake, then one would expect an immediate and concentrated effort to set those priorities and then act on them. However, Strong's language and that of the UN documents circumscribe its ability to move fast or far, in spite of the breadth and optimism of its aims. The one term to which Strong returns is *environment*; in choosing this word, Strong effectively redraws the circumference of the UN's purpose regarding the environment. Otherwise, the irony at the base of Strong's language is that, rather than defining the problem of climate change with a clear set of terms, it only names the *potential* of the UN to address environmental problems. Indeed, Strong does not hold the office of head of any state, so his proclamations—no matter their cogency and prescience—do not wield the same force as did those by Presidents Johnson and Nixon

and in the next millennium, those of President Bush. They are expressions of hope and suggestions for action.

Waving a Checkered Flag and a Red Flag: The United Nations' Resolution to Establish the IPCC.

In 1988, sixteen years after Maurice Strong's address in Stockholm, the United Nations moved at last to assemble the work-in-progress pieces of climate change science. The UN published the resolution to establish the Intergovernmental Panel on Climate Change (IPCC) with this title: "Protection of Global Climate for Present and Future Generations of Mankind." The grand language of the title draws an enormous scene for the IPCC's environmental work. The IPCC's mandate is planetary in geographic scope, but it was also unlimited in chronological time. The IPCC's task is to protect the climate; and it carries the imprimatur of an organization that includes 193 of the world's 196 nations. All three of these elements provided broad targets for attack by various political, industrial, economic groups.

The nature of the 1988 UN declaration to establish the IPCC dictates its cool tone and distancing language. Unlike presidential addresses or conference keynote speeches, a formal declaration manifests the generic conventions of ritual. In paragraphs 8 and 9, the organization's limitations become apparent:

> [The General Assembly of the United Nations] encourages the convening of conferences on climate change, particularly on global warming, at the national, regional and global levels in order to make the international community better aware of the importance of dealing effectively and in a timely manner with all aspects of climate change resulting from certain

> human activities; [and] calls upon Governments and intergovernmental organizations to collaborate in making every effort to prevent detrimental effects on climate and activities which affect the ecological balance, and also calls upon non-governmental organizations, industry and other productive sectors to play their due role.

Granted, the purpose of the declaration is quite pointed: to establish a body "to co-ordinate scientific assessments of the magnitude, timing and potential environmental and socio-economic impact of climate change and realistic response strategies." And, predictably, the term *climate change* dominates the language. But the differences in this document and the three speeches from the previous scene arise from the genre of a declaration. The generic conventions of a declaration allow for a series of statements justifying a recommendation to a generalized audience. In contrast, the speeches of Presidents Johnson and Nixon and Senator Nelson are delivered to the immediate audience of sitting legislators who have the power to enact laws prompted by the speeches. The obfuscating and distancing vocabulary of the UN declaration, on the other hand, operates synecdotically to represent an entire bureaucracy of UN divisions and committees. In particular, these phrases name distant actions, muffled in the worst case, by built-in opportunities for delay: *encourages*, but does not or cannot *mandate* the "convening of conferences": occasions for *talk*, but *not necessarily for binding legislation* to limit carbon emissions; "make the international community *better aware* of the importance of dealing with," but not itself dealing with climate change. The UN is capable of "making every effort" to investigate "possible responses" to the threats of climate change, but the most immediate response is to review and recommend. In other

words, the resolution asks for study. Hence, from its inception, the IPCC was designed to assimilate information from a broad array of credible scientific experts and publish their findings.

Herein also lies the crux of one of the deniers' arguments: The UN's objective is purportedly to take over every nation's sovereign government by acquiring its members' sometimes-unwitting collusion in a global coup. The irony of this attack is that the parameters within which the UN works and the language of its own document—this declaration, for example—illustrate both the handicaps and the idealism of its enterprise. The UN can encourage, can call upon governments to collaborate, can initiate action leading to—not a one-world government—but a comprehensive review and recommendation, five recommendations, in fact, all expressed in the hedging language of possibility.

Overlapping Scenes of Debate: The IPCC Names Climate Change

The case of Ben Santer, an atmospheric scientist at the Lawrence Livermore National Laboratory in California, illustrates the migration of terms in the scene of climate change debate from 1995 to the present time. Santer was a central agent in the scene of the 1995 Second Assessment Report (SAR) of the IPCC, but after the report was published, his name and his identity as a scientist became instruments with which climate change deniers attacked the entire prospect of carbon emissions limitations. It was Santer's role, as well as that of hundreds of other scientists from around the world, to pick up the acts motivated by the 1988 UN declaration and initiate a relatively fast foray into the science of climate change. Between 1988 and 1990, a coalition of scientists wrote the First Assessment Report that predicted increases in greenhouse

gases, but did not declare levels of detection or attribution of the sources of increased emissions. Santer was a lead author for Chapter 8 of the 1995 SAR whose purpose was to declare with as much certainty as possible the conclusions of five additional years of climate change research. Chapter 8 included 5 pages, out of a total of 32 about the uncertainties of model predictions and of estimations of natural variability in climate change (409), uncertainties later attacked by climate change deniers, even though these very uncertainties lent credibility to the SAR's scientific underpinnings. But even more inflammatory, the chapter contained the claim that humankind was capable of changing the planet's climate. Because this was the first time attribution of climate change to human activity was made without equivocation, the factions who denied (and still deny) that climate change is occurring began to undermine the claim with arguments against the terms *attribution* and *detection*, terms central to Santer's work.

In fact, one sentence from Chapter 8 launched Santer into an unbidden struggle to defend his credentials against attacks from climate change deniers, even though the rest of chapter 8 contained the hedging language characteristic of science publications. On the question, "When Will an Anthropogenic Effect on Climate be Identified?" Santer writes:

> Detection of human-induced change in the Earth's climate will be an evolutionary and not a revolutionary process. It is the gradual accumulation of evidence that will implicate anthropogenic emissions as the cause of some part of observed climate change, not the results from a single study. While there is already initial evidence for the existence of an anthropogenic climate signal, it is likely (if model predictions are correct)

> that this signal will emerge more and more convincingly with time . . . . Some scientists maintain that these uncertainties currently preclude any answer to the question posed above. Other scientists would and have claimed, on the basis of the statistical results presented in [this chapter] that confident detection of a significant anthropogenic climate change has already occurred. . . .[But] few would be willing to argue that completely unambiguous attribution of (all or part of) this change has already occurred, or was likely to happen in the next few years. . . . *[However] the body of statistical evidence in Chapter 8, when examined in the context of our physical understanding of the climate system, now points towards a discernible human influence on global climate*. (439, italics added)

This last sentence drew criticism from a number of sources, most vocal being the Global Climate Coalition, a fossil fuel industry group who perceived their interests threatened by any hint of mandatory limits on carbon emissions (Oreskes and Conway, *Merchants* 207). But before that sentence, the terms with which Santer is willing to express his conclusions are fundamentally the measured language of science. The terms *evolutionary* and *gradual* indicate how slowly climate change science will move. The words *It is likely*, *if*, and *uncertainties currently preclude any answer* underscore the prototypical scientist's hesitation to make unqualified declarations. But the next to last sentence, beginning with "But few would be willing to argue," illustrates the convoluted language of a scientist attempting to make the strongest possible claim, but remaining bound by the necessary constraints of good science. A policy maker or any other non scientist must work at that sentence to apprehend its meaning. Its tentative language

and convoluted structure work against a policy maker's need to have phrases ready for a town hall meeting on dollars that must be committed to raising the piers in Virginia Beach. However, this whole paragraph from Santer's group ignited a firestorm of protest that cost him nearly a year to tamp down.

Santer took on an almost impossible role because he occupied at least five scenes simultaneously. He was chosen for the IPCC because of his work in atmospheric science at LLNL, an institution that occupies a prestigious place in the whole scene of scientific research in the US and the world. During Santer's acts on behalf of the IPCC, he does not surrender his role at Lawrence Livermore, but continues—when he can—his own research. And he is quite vocal about wishing to resume his role in that more limited and certainly quieter scene. Preferring to act in fewer scenes, he sacrifices time and other publications to accept the burden of leadership in the IPCC scene. Because the IPCC is a member agency in the UN, Santer's role as IPCC lead author positioned him in a spotlight of the institutional scene of the UN. His language became the UN's language; his identity became the IPCC's. Or, rather, the IPCC took on the Ben Santer identity when Santer was singled out for criticism by the climate change denial community. His name and his reputation become the agency by which the climate change deniers cast aspersions on the entire IPCC process. In this example, then, an agent may occupy several scenes at once, some by choice; others, by force. In addition, an agent's name and attributes may be manipulated in other scenes into tools that are useful to the manipulators, but destructive of their original use. Ben Santer was placed against his will in the center of the scene of climate change denial, used as an instrument of attack,

and manipulated into accepting a role he did not seek: defending himself, his reputation as a scientist, and the credibility of the IPCC.

From Environmentalism to Digital Activism

A number of sources have argued the origin of the environmental movement and the supremacy of the term *environmentalism* over the previous term *conservation*. Likely the most well known, reported by Eliza Griswold of the *New York Times*, is that Rachel Carson's *Silent Spring* ignited the environmental movement by exposing the damage caused by synthetic pesticides, such as DDT. The book, published in 1962, and Carson's testimony before a Senate subcommittee in June 1963, alerted the public and the legislature to the potential for humankind to do widespread damage unintentionally. The *Origins of the EPA* attributes to Carson an unintentional launching of the modern environmental movement: "In the process of transforming ecology from dispassionate science to activist creed, Carson unwittingly launched the modern idea of *environmentalism*: a political movement which demanded the state not only preserve the Earth, but act to regulate and punish those who polluted it."

A less well-known claimant to the title of what launched the environmental movement is made in the *Environmental History Timeline*: "The Scenic Hudson Decision was a 17-year (1963-1981) legal dispute which defeated Consolidated Edison's plan to embed the world's largest pumped storage hydroelectric plant into the face of Storm King Mountain, near Cornwall, New York. . . .The landmark case set important precedents in environmental law including: the right of citizens to participate in environmental disputes, . . . federal and state regulation of the environment, and it is credited with launching the modern environmental movement."

Taking a different position, Philip Shabecoff argues that in the second half of the twentieth century, the loose aggregation of groups—such as the Sierra Club—associated with *old conservation* confronted a new activism interested in redefining conservation as the mitigation of *pollution*. By the mid 1970s, the new social militants, as Shabecoff calls them, realized that the most powerful activism would take advantage of a unified front to do battle with "the cause of reducing pollution and protecting public health [which was] inseparable from the cause of saving the land and preserving nature" (111). Shabecoff credits this dual cause for the birth of the new environmentalism.

Rothman argues that during the 1955 struggle to preserve at least one especially stunning wilderness, the Echo Park area on the Utah/Colorado border, old conservation evolved into environmentalism, although the term *environmentalism* did not dominate the movement until the next decade (36). A coalition of seventy-eight national and 236 state conservation organizations—these were the *old conservation* groups—conducted a multi-media campaign against the Echo Dam project, one of ten dams along pristine wilderness areas proposed in the Colorado River Storage Project bill (41-42). One mark of the new environmental movement, according to Rothman, was the sphere in which the battle was fought: "[T]he primary rule of success in policy issues in post-1945 America [was to] fight battles in the press where the public can make its own decisions" (46). Environmental activism takes advantage of this new sphere in the decades following the Echo Dam battle.

Finally, Adam Rome argues that the first Earth Day promoted the rise of the environmental movement and created the first "green generation" (xi).

The important feature of each of these claims is not whether historians will judge one claim to actually be the source of the new environmentalism, but rather the phenomenon shared by each: As Americans grew increasingly aware of threats to their locales, they joined with other citizens in using their newly acquired language to pressure their legislators to enact laws to protect the environment. However, the laws themselves and the agencies charged with their enforcement were uneven in their efficacy, reducing some pollutants, but not addressing CO2 emissions. No figures following President Johnson take up the term *beauty* in their appeals for action on environmental degradation. The language of speakers from Nelson and President Nixon to Frank Luntz foregrounds the problem of *pollution*. By the new millennium, the scenes of debate are dominated by the dueling terms *global warming* and *economic development*, used as instruments of war over carbon emission legislation and federal dollars to support it, and as tools in the push against joining the UN's efforts to mitigate global warming. After 1995, upon the widespread civilian use of personal computers connected to the Internet, individual citizens' ability to disseminate the terms of environmental advocacy increased. The move into digital activism afforded a multitude of advocacy groups a virtual forum for debate available to anyone with a computer and a plug. Terms that define the debate about global warming operate as tools in one scene and actors in another to ignite controversy where none exists, or to energize a lethargic or merely confused public anxious to occupy a safe scene delineated by familiar terminology.

The ultimate circumference, as Burke asserts, is the earth itself, defined by the real physical boundaries of a planet in a solar system. Maurice Strong puts it this way in

his “Rio92” keynote address, nearly a generation after his Stockholm speech: “In our negotiations with each other, nature must have a place at the table, for nature will have the last word and our decisions must respect the boundary conditions it imposes on us as well as the rich array of resources and opportunities it makes available to us.” Given the growing controversy among climate change denialists over how to use the planet’s natural resources, Strong’s assessment of the paradoxical role of science anticipates the debacle of the Copenhagen summit:

> Science and technology have produced our knowledge-based civilization. Its misuse and unintended effects have given rise to the risks and imbalances which now threaten us. At the same time, it offers the insights we need to guide our decisions and the tools we need to take the actions that will shape our common future. The guidance which science provides will seldom be so precise as to remove all uncertainty. In matters affecting our survival, we cannot afford to wait for the certainty which only a post-mortem could provide. We must act on the precautionary principle guided by the best evidence available.

On the one hand these stirring words appear powerful enough to stave off the bequest of a ruined world, but in calling for unity and a global partnership, Strong also provides the denialists with ammunition for their attack on the UN as a rapacious totalitarian entity, with a covert agenda to subsume all nations under one government. Strong’s terms and the denialists’ response set the stage for new scenes of digital activism, both for and against limits on carbon emissions.

Conclusion.

In this chapter, I have created a rhetorical history of the arguments made by various constituencies before the United Nations Framework Convention on Climate Change in Copenhagen, Denmark, in December 2009. Using Mailloux's definition of the rhetorical history as an examination of the background of claims shared and disputed in a rhetorical situation, I analyzed the documents in three general scenes of environmental debate leading to the UNFCCC. The terms in the documents have propelled action at times, but thwarted it at others by establishing terminological limits so constricting as to render negotiation for widespread environmental protection uneven at best.

Controlling perception by selecting the terms to describe a set of circumstances is the rhetorical tool employed by the agents in the scenes I have constructed. Between World War II and 1970, the degradation of the physical environment in the United States was called out of its role as scenic backdrop into an active role as agency, then agent as President Johnson, President Nixon, and Senator Gaylord Nelson presented examples of the ruination of the water, soil, and air. The actual evidence of the pollution was so convincing that not only did these three speakers bring it forward as a persuasive tool, but the public also participated in widespread protests against the industrial practices that created the pollution. By the time President Nixon established a federal agency in charge of remediating polluted areas, the facts of the episodes of toxic waste were powerful tools in the hands of the mass media. As Naomi Oreskes observes, facts do not speak for themselves; they have to be made to speak, made to travel ("My Facts Are Better Than Your Facts" 157). Picked up by the international

community as represented by the United Nations, the language of pollution in general and global warming in particular appeared in resolutions to create the UN's first conference on the topic, the 1972 Stockholm Conference.

As Burke theorized, terms in one scene motivate action toward environmental advocacy, for example, action that in a later scene becomes a motivation for the selection of other terms and other actions. Focusing on the terms *pollution, conservation, beautification, environmentalism, ecology, climate change, global warming,* and *economy*, I examined the constraints and affordances of each term's evolution in texts by Presidents Johnson and Nixon and Senator Gaylord Nelson. The terms *beautification* and *pollution* used by President Johnson and Senator Nelson set the stage for President Nixon's foregrounding of the term *environmentalism*. However, later Republican Presidents Ronald Reagan and George W. Bush selected the terms *economy*, *states' rights*, and *national sovereignty* in order to deflect attention from the *environment* (whose protection threatened economic viability), *federal regulation* (seen as unwarranted intrusion), and *international cooperation* (seen as a move toward a one-world government). To employ these terms as the names of opposing positions balked action toward reduction of carbon emissions by making compromise seem to be weakness and negotiations, capitulation to the enemy.

Enacting Burke's theory that language changes behaviors, Republican Party language coach Frank Luntz worked to create a greener image for Republicans by appealing to Americans' desire for local, voluntary, common sense solutions over international treaties and costly federal mandates to lower carbon emissions. Moving away from the vocabulary of nationalism, however, UN Secretary-General to the 1972

Stockholm Conference Maurice Strong draws the circumference of environmental problems to include the entire globe and generations past and future. Although Strong's speech in 1972 and texts from later UN documents explicitly name climate change mitigation as an imperative, the same documents evince an impression that so cumbersome a bureaucracy as the UN and its Intergovernmental Panel on Climate Change (IPCC) cannot solve the problems they describe. They problem and define, but do not—cannot—mandate national legislation to reduce carbon emissions. The reports by the IPCC, however, become lightning rods for growing criticism from a small but vocal coalition of climate change deniers.

Four legacies endure from the three scenes I have constructed in this rhetorical history. The first is the principle of beautification of roadsides and other landscapes, a principle President Johnson argued would contribute to economic, social, and personal wellbeing. The second is Earth Day, which continues as an annual opportunity to educate the public about the environment. A third legacy is the Environmental Protection Agency, which, like many bureaucracies was born out of a need, this one to protect the environment from the acute crises of pollution. But like most bureaucracies, it founders in the face of chronic environmental problems, such as global warming. Moreover, because it is a federal bureaucracy, it is the target of critics who generally oppose federal action in local problems. Most important for chapter 4 of this study, the EPA becomes the symbol of federal intrusion, as perceived by those who deny that climate change is a local as well as a global crisis. Finally, the UN's IPCC continues to publish a coordinated report of evidence of climate change and suggestions for amelioration of its effects. Like the EPA, the UN generally and the IPCC in particular

have become lightning rods for criticism so virulent that neither has risen above the dissent to provide leadership for the world in reducing carbon emissions. The environmental advocacy group *350.org*, founded by Bill McKibben sought to fill this role of leadership.

Chapter 3. Bill McKibben and *350.org*: Circumferences and Reductions in the Rhetoric of a Social Movement

> *In keeping with our distrust of both "perfectionist"' and "invertedly perfectionist" motivations, we should feel justified in never taking at its face value any motivational reduction to a "simple" (Kenneth Burke,* A Grammar of Motives*).*

On the occasion of *Utne Reader*'s naming him as one of 2010's "25 Visionaries Who Are Changing Your World," environmental journalist and scholar in residence Bill McKibben confesses, "'it wasn't really [his] nature to be a political organizer'" (Goetzman). Rather, McKibben thought, "someone else would build a movement." However, given the urgency of anthropogenic global warming and the absence of any other viable leader for the movement,[13] McKibben accepted the role: "'I figured I'd better do what I could.'" The action McKibben has chosen is to build an environmental advocacy movement—*350.org*—defined by two principles: Its opposition to the fossil fuel industry and its fervent affirmation of faith in a rational, well-informed public to pressure its political leaders to limit carbon emissions to 350 parts per million. McKibben's writing and speaking agenda from 2006 to the present supports both principles.

To characterize himself as a reluctant social movement leader is consistent with McKibben's rhetoric in general, as I will demonstrate in this chapter. He is a journalist first and a movement leader second. But, even though he attempts to distinguish

[13] Vice President Al Gore and the United Nations Intergovernmental Panel on Climate Change group were awarded the 2007 Nobel Peace Prize. Although recognized through 2008 as a crusader for environmental causes, Gore has been less visible since then as the public face of climate change action (Restuccia).

between his role as a journalist and his current movement leadership, his activities as a movement leader are often manifested in his speaking and writing, at times offhanded and understated, as in his comment to *Utne Reader*; at others, full of pique or sarcasm; most often, redolent of earnestness. And in spite of his protestations that *350.org* is a "bottom-up, grassroots organization fueled more by the passion of its activists than by a strong hierarchy" (Goetzman), McKibben is the driving force and the face and personality most closely associated with *350.org*. In fact, although "team members" in the organization are featured by name on the website and occasionally in photographs, Bill McKibben is the one sought by mass media reporters and talk show hosts for his assessment of the state of the environment. For example, McKibben was twice interviewed by Stephen Colbert for *The Colbert Report*, the first time in August 2009, to promote *350.org*'s International Day of Climate Action before the United Nations Framework on Climate Change Conference in Copenhagen in December 2009; the second, to express opposition to the Keystone XL pipeline from the Alberta Tar Sands to refineries on the Gulf of Mexico.

In each interview, McKibben employs a *god term*, defined as a term capable of motivating the most essential of human behaviors, for our time and for all time, a commitment to reducing carbon emissions. McKibben's god term is one number: 350 parts per million, the concentration of particles of carbon in the atmosphere beyond which human civilization as we have known it cannot thrive, according to McKibben's friend and NASA scientist James Hansen. Paradoxically, however, if all decisions about human civilization are reduced to one simple numerical point—to what McKibben calls "a wonky scientific data point" (Goetzman)—does this reduction constitute a move

toward the dangerous, single-minded striving for perfection, which Burke insists we should distrust? (*Language as Symbolic Action* 16). Complicating this question about a movement's vision for the future is to ask whether any social movement can grow to viability without such a reduction?

In chapter 2, I constructed the rhetorical history that preceded the founding of *350.org*, by tracing the migration and evolution of key terms in the environmental debate from 1920 to 2009. The terms *pollution*, *conservation*, and *beautification* dominated the discourse about environmental concerns in the second half of the twentieth century. However, the terms that mark off (preside over) the rhetorical space occupied by social movement leader Bill McKibben and *350.org* are *climate change* and *global warming*. In this chapter, I will address the limitations of earlier critical approaches to social movement rhetoric, from Leland M. Griffin in 1952 to Gerard Hauser in current journals, which do not adequately account for the rhetorical moves that Bill McKibben makes in his leadership of *350.org*. Kenneth Burke's theory of circumferences and reductions, however, provides a useful framework within which to examine the multiple functions of McKibben's terminology in building an environmental advocacy movement around the numeral "350." This analysis will contribute to conversations about social movement rhetoric by demonstrating how McKibben's terminology itself creates simultaneously expansive and reductive circumferences for his environmental advocacy movement.

Moreover, I seek to extend Burkean scholarship on circumferences into the domain of social movement rhetoric. Burke uses the term *circumference* to mean "contexts [or scenes] of varying scope," the circumferences themselves created by the

terms one employs to inscribe—and describe—the scene of human drama (*A Grammar of Motives* 77). In this sense, then, the leader of a social movement must choose a set of terms with which to communicate both the goals the movement advocates and the requirements of membership, as distinctive from those of the establishment. The established order, as Herbert W. Simons describes it, is the social context out of which a movement is born and against which the movement works to demonstrate the value of its worldview as a corrective to the excesses or omissions of the establishment. In terms of circumference, the social movement leader marks off both the identity the advocacy group will assume and the territory it will defend. In addition to Burke's concept of circumferential terminology, his theory of dramatistic motives invites application to social movement rhetoric. The movement leader apprehends a new scene that he believes must replace the previous one occupied by an establishment now corrupted by inaction, ignorance, greed, or other motive. If his rhetoric is successful, the leader will populate the new scene with adherents ready to expand the circumference of influence to an increasing number of believers, each willing to accept the new terms that define them and their territory. In addition, the agent, agency, and certain scenic elements may potentially shift roles in the movement's drama, a case I will make in this chapter.

The purpose of this chapter is to explore the work Bill McKibben expects the numeral *350* to accomplish in establishing the territory, identity, and motives for action of a new advocacy group and in persuading an untutored and indifferent public of its significance. In terms of Burke's dramatistic model, the numeral *350* works simultaneously as agent, agency, and scenic element, roles that I will examine. In addition, my purpose is to trace the migration of the numeral from an administrative

role to its synecdotic function in the International Day of Climate Action, and ultimately, to its work as both literal and symbolic banner under which environmentalists mount their assault on the fossil fuel industry and government policy affecting carbon emissions.

To do so, I will first briefly trace the history of criticism in social movement rhetoric in order to demonstrate that Kenneth Burke offers an especially productive theory with which to examine movement rhetoric. I argue that, following Burke's theory, contracting and expanding circumferences work both to establish and then to limit—perhaps dangerously—the scope of a movement's influence. Then, in light of Burke's theories about the vocabulary that constructs rhetorical scenes, or circumferences, I will examine the rhetorical identity of Bill McKibben as revealed in three of his major works, in a selection of his writing for mainstream media, and in announcements and proclamations at the *350.org* site on the occasion of the International Day of Climate Action (IDCA) on October 24, 2009, including in this section a rhetorical analysis of McKibben's speech the morning of the event. I argue that McKibben's uneven use of science complicates his identity as a spokesman for the environmental movement, even as he relies on science to bolster his argument. In particular, McKibben reduces science to climate science, most often represented in his rhetoric by the terms *physics* and *chemistry* and *350 parts per million of carbon in the atmosphere*. In addition to calling on science, McKibben explicitly acknowledges the utility of digital media—a product of contemporary computer science—to summon adherents from across the globe and distribute his movement's message to them, even though they will likely never encounter one another, except in *350.org*'s digital space.

Finally in this chapter, in order to contribute to the rhetorical theory of embodied and virtual publics to which environmental advocacy groups appeal, I will explore the digital activism enacted on the IDCA.

Social Movement Rhetoric Since 1950

The significance of Leland M. Griffin's early work in establishing social movement rhetoric as a field of study is indisputable. His analysis of social movements situated in history describes stages of movements out of which rhetorical patterns emerge for the critic to study. This view assumes that social movements are observable phenomena, situated in the physical world, tied to organizations (or counter-organizations) with members who live in relative proximity and collude in their resistance to ideological and social injustices. A decade later, Griffin applied Kenneth Burke's dramatistic theory to social movement as a study of "striving for salvation" (Griffin, "A Dramatistic Theory" 460) and "rhetorical striving, [or] a becoming" (461). Here again, Griffin predicted patterns for a social movement, from inception, through crisis events in working against the established order, and toward a consummation of negotiation or capitulation with the established power structures. Each stage, according to Griffin, requires specific patterns of communication in the drama of transformation that constitutes a movement.

Indeed, Griffin argues that the rhetorical moves of the social leader must work in two ways: First, the leader's rhetoric must separate advocates from the establishment; second, his rhetoric must provoke so potent a counter-movement within the establishment that there is enough conflict to create a crisis (463-66). This crisis, according to Griffin, might be "a fortuitous intervention of some cataclysmic event"

(466), out of which the movement leader guides his adherents and the larger society into a new stage during which they accept, as Burke says, a new symbol of authority for their better way and their new identity. While I accept Griffin's definition of movement rhetoric as essentially agonistic, I argue in this chapter that the leader's rhetoric moves adherents into new scenes in which the leader and adherents act on one another to increase the intensity of adherence, a task made both more possible and more difficult in overlapping digital circumferences. Moreover, given that the domain of advocacy of *350.org* is the environment, the scenic elements derive special significance, and, as I will discuss, become agents themselves.

Whereas Griffin presents a beginning theory for social movement rhetoric, Herbert W. Simons offers an instrumental description of leader-centered social movement rhetoric, in which responsibility for the success of the movement falls to the leader, who defines, resolves, or dismisses conflicts rhetorically. The primary task of the social movement leader during the inception of a movement is to secure adherents and consolidate their support in order for a number of movement tasks to be accomplished, such as writing and distributing the ideology or program elements of the movement. In the best case, according to Simons, social movement leaders are able to convince the establishment to take bad-tasting medicine promoted by the movement as a curative for the ills of the establishment, while at the same time to mobilize a diverse collectivity within the movement.

Simons argues that successful leaders convince the membership that the movement embodies a higher wisdom than that provided by the establishment and promotes a profound sense of justice. To apply Simons to the case of *350.org*, Bill

McKibben must articulate the overarching principles of reducing a carbon footprint in such a way that the movement participants convince the establishment of the wisdom of environmentally sustainable behavior, and together they accept that the move toward fewer carbon particles in the atmosphere represents a profound sense of global justice: If Earth's atmosphere is overwhelmed by carbon exceeding 350 parts per million, the whole of human civilization is at risk. Justice in this sense is indeed profound: All humans make a necessary change so that all have an equitable chance of thriving in centuries to come. Although Simons's theory of movement rhetoric addresses the leader's role in conceiving of a just world, his theory stops short of accommodating a leader's specific rhetorical moves. Also, for reasons he couldn't possibly have imagined in 1970, Simons's work is not always applicable. The affordances of digital advocacy, for example, demand that rhetorical critics rethink much of social movement theory. Contemporary criticism of movement rhetoric must acknowledge that today's social movements are not always conceived and led by a single individual, nor is the public in which the movement operates constrained by physical space.

Two other critics, Robert S. Cathcart and Charles A. Wilkinson, take issue with Griffin's construction of identifiable patterns in social movements throughout history, arguing that movements are too variable to be compared. They contend that Griffin stops short of defining the rhetorical nature of social movements by emphasizing movement stages that, in their view, are too narrowly and artificially defined. As is true with Simons's theory, Cathcart's and Wilkinson's constructs offer productive views of how movements emerge from social problems and how they promote conflict as they

grow. But, in spite of the foundations in movement criticism offered by these theorists, I argue that Burke's conception of *vocabulary* as the agency of movement identity constitutes a productive tool for contemporary movement analysis.

In contrast to Griffin, Simons, Cathcart, and Wilkinson, David Zarefsky argues that social movements are not unique or even special cases of rhetoric deserving of a critical theory apart from other objects of rhetorical analysis but, instead, can be addressed by the critical lens appropriate for any rhetorical artifacts. Zarefsky recognizes the usefulness of examining social movements in their historical situations in order to reveal what their rhetorical moves indicate about history, but this analysis, according to Zarefsky, does not in and of itself require a special rhetorical theory. Although assessing the ultimate historical significance of the IDCA and of *350.org* is not possible because of their recency, I agree with Zarefsky on the importance of situating *350.org* in its rhetorical history, the particular task of chapter two in this analysis. Moreover, whereas I concur with Zarefsky's emphasis on examining a social movement in its historical context, I disagree with his opposition to a theory particularly suited to movement rhetoric. Indeed, Burke's theory of terminological circumferences offers an eminently clear view of the rhetorical work a social movement leader must accomplish. Even so, since Burke himself did not explicitly address the malleability of scenes in a *digital* world, in the last section of this chapter, I will turn to Gerald Hauser, Barbara Warnick, and other critics of digital activism to frame the components of *350.org*. available in electronic scenes. But first, in what ways does Kenneth Burke offer a particularly efficacious theory with which to examine the rhetoric of Bill McKibben, the founder of *350.org*?

Kenneth Burke's Terms and Circumferences: a Theory for Social Movement Rhetoric

Burke argues in *A Grammar of Motives* that the language with which a person describes a situation creates its scope and motivates subsequent actions:

> [O]ne may place the object of one's definition in contexts of varying scope. . . . [W]e may reduce the circumference . . . when we define motivations in terms of the temporally or geographically local scenes that become a "second nature" to us, scenes that may themselves vary in circumference from broad historical situations to the minutely particularized situations of back-stairs gossip. (*GM* 77)

A social movement leader's role, in the context of Burke's description of terminological circumference, is to frame the scope of a social problem in terms sufficiently limited that potential adherents are motivated to join together to remedy the problem. Setting limits in the key terms for a movement is essential in order for the leader, as Simons argues, to attract loyal adherents willing to mobilize for action against the values of the established order. The rhetorical work of limiting a movement's vocabulary comprises three steps, according to Burke's definition: Selecting, reflecting, and deflecting. The leader selects terms that reflect the values of the movement, while deflecting attention from considerations she wants to obscure—possibly opposing views, or contradictory evidence, or perhaps, just the noise of everyday life that might distract adherents from advancing in a unified mission. Moreover, the circumference into which the leader wishes to move adherents must be distinct from the surroundings she asks them to abandon. In a sense, the leader of a social movement is *obligated* to create the

terministic screens, to use Burke's term (*LSA* 45), that fence off the new circumference, building a new ideological abode for adherents to the movement, over which flies a new banner as their symbol of authority. The vocabulary of the movement's territory must be secure enough in the minds of followers that they will communicate it to others, in missionary fashion, so that once unified, they will march under the new banner in social actions marked by solidarity.

Although Burke's understanding of action as the central tenet of human life emerged from his work in literary criticism, he proposed that any human act—including the acts of a scientist or social movement leader—could be examined in dramatistic terms. In addition to identifying the scene of action, one might name four other elements in the drama: the agent, the act, the agency, and the purpose of a given situation in order to discover and articulate motives although these roles may shift ambiguously against one another. One significant discovery for me was to consider the propensity of scientists in the midst of experimentation to look only at the agency, or instrument of action, at the sacrifice of the other four elements and the possible relationships, or "ratios," among these five elements. Burke distinguishes between mere motion, as mechanical operations over which we have little control, and action, as the essence of human life, including biological life: When the human body ceases to act, it is no longer alive. Burke also proposed that the agency in one scene—the terminology of a movement leader, for instance—might with the passage of time become part of the scene for a later generation. Moving the terms to another scene, Burke argues, creates incongruities because of the unfamiliarity of the term in the new scene. In other words, Burke proposed that one could achieve a new perspective on motive by using terms to

establish new circumferences, and if this rearrangement were performed consciously, that is, if one "planned the incongruity," real learning about motive would be likely. How might a conscious positioning and repositioning of terms create new circumferences in an environmental debate?

Shifting Pentadic Terms in the Environmental Debate

In *Attitudes Toward History*, Burke introduces the "little fellow Ecology," predicting that in time we would pay more attention to him than was paid during the Dust Bowl, the scene of Burke's commentary, and a scene Burke was familiar with, as Marika Seigel argues. For example, one way to construct the dramatic scene of *grain farming* during the Dust Bowl would have the plains farmer as agent, acting to sow wheat after breaking the ground with a wide-blade harrow as his instrument, or agency, all for the purpose of creating a livelihood for his family. In this scripting, the motive for the farmer is not exorbitant profit, but an adequate livelihood. However, if we change the circumference of the scene by introducing the broader terms of market capitalism in relation to grain farming, we arrive at a different pentadic configuration. Here the scene is the grain futures market in Chicago; the agent is the corporate investor, possibly the owner of a national system of grain elevators; the agency is the marketability of wheat; the act is the sale of a million cubic tons of wheat; and the purpose is to fix a price for the grain. The motive becomes profit on a scale unimaginable for the family farmer, without whose labor the corporate investor would have no commodity to trade. Thus, by changing the vocabulary used to describe *grain farming*, we have altered the context and motives of the actors.

A third configuration emerges from Burke's commentary on the balance, or rather imbalance, in the ways humans use resources on a global scale. The scene is the grassy Central Plains of North America from Canada to the lower Llano Estacado, from the Mississippi to the Rocky Mountains. The agent is the settler, *cum* farmer, multiplied into the tens of thousands. The agency is the plow. The act is the disking up of the native grasses. The purpose is the planting and harvesting of wheat. If the next agent is Nature, the agency becomes the prevailing winds. If we cause the terms to migrate again, the wind becomes agent, and the next instrument is crystalline grains of topsoil blowing across the Plains, cutting all growing matter down to the ground. The grains of blowing dust become the agency by which families are made homeless vagabonds in search of new livelihood in the orchards of California. This cascading action is what provoked Burke's observation that, if we don't pay attention to balance in the whole ecological system, there will be a catastrophic collapse of that system.

Burke's observations about land abuse during the Dust Bowl are congruent with his insistence that our terministic screens constitute identity and behavior within a given circumference. How we choose to label ourselves (farmer, good corporate citizen and taxpayer) and our actions (stay on our family's land, maintain an agri-culture, support the American way of life) create the circumferences we inhabit. Moreover, our labels create our pieties—our allegiances, our sense of what belongs with what—and become the symbols that authorize our behavior. Shifting the labels, or changing our symbols of authority, means moving into ambiguity and disorientation, but this unsettling is the necessary next step toward tempering our ambition for comfort and profit at the expense of the planet and her less well-endowed inhabitants. Even though

the catastrophe of the Dust Bowl resulted in helpful reforms of agricultural practices, imbalance and competing loyalties continue to plague humankind's use of natural resources. For example, a housewife may wish to continue paying eight cents a loaf for white bread in 1930, but if she is a farmer's wife, she feel the ambiguity of wanting the price at the grocery store to better reflect the labor her husband and family contributed to its production.

But can humans survive in ambiguity? Only if we remember our heritage as linguistic creatures, created by language and creators of language. What if the family farmer and the corporate investor re-examine their own identifying labels and come together as "Plainsmen"? Suddenly the linguistic transcendence provides a new motive: to continue living on the Plains. The new label does not eliminate the friction caused by the biases of livelihood and lifestyle, but the consubstantiality does invite talk on a new level. Someone else observing the conversation might not consider it poetry in the making, but Burke would. If a human's essential impulse is the creative, synthetic act of using language to name and shape behavior, is that not the way we describe the action of the poet?

The question at hand, though, is whether a social movement leader is a poet in this sense, appropriating the tools of language in order to "invite talk on a new level." Or must the social movement leader necessarily script her talk so that all ambiguities are removed, or are at least reduced and confined to tiny—and thus dismissible outposts?

Metonymic Reduction and Synecdotic Expansion in the Environmental Debate

Although in "Four Master Tropes" from *A Grammar of Motives,* Burke was addressing the role of the poet as an agent of social change, I argue that his conception

of metonymic and synecdotic interchanges between writer and audience holds true for the social movement leader. Much of Burke's work in the 1930s addressed the debate over who was in charge of creating the symbols of authority for a people. During these culture wars, Burke argued that all writing has incentive, that there is no essential difference between propaganda and poetry because humans created both (*Auscultation, Creation, and Revision 103*). Linguistic action is a permanent feature of human life, but differences do occur in the scenes out of which the words—and subsequent actions—emerge. Thus, in this sense, all humans are poets capable of using and abusing language consciously and purposefully, but also, through linguistic sleep-walking, capable of allowing terms to recede into the scenery. When terms, such as *gas station*, *car*, or *highway*, for example, disappear from the collective consciousness and recede into the background, it falls to the leader of an environmental movement to bring them back into their roles as agency, or in the case of *350.org*, their roles as agents.

As expressed in Burke's "Four Major Tropes," a metonym works to *reduce* experience of the physical world to a univocal understanding. The movement leader, for example, perceives a catastrophic problem in the world—a problem such as global warming, translates her experience into words, then aims those words at an audience of potential adherents. The audience, as David Tell explains, takes in the words, and to a limited extent, identifies with the writer's experience. Burke, however, regards these exchanges as reductions, the process for which he reserves the term *metonym*. The term *synecdoche*, on the other hand, means for Burke the consummation of deliberate linguistic action characterized by reciprocity between writer and audience: The writer takes in experience, chooses terms in which to express it, throws the articulated

experience out into the world, where an audience member picks it up, identifies with it, and—here is the difference—*acts* on it. In this portrayal, the member of the audience is changed by the linguistic action. Such change is the ultimate goal of a social movement leader.

I will illustrate Burke's distinctions between the terms metonymy and synecdoche with a brief examination of the terms "green" and "greening," as they appear in newspaper headlines, advertising brochures, and other media contexts. The term "green" often becomes a code word for "environmental responsibility." "To live green" is to live with a low carbon footprint and to make choices as consumers that will allow resources to be sustained. Marketers, however, know that the current social fad is "green living," and so publish in print and online advertisements that cleaning products, for example, are "green" so that consumers will buy them. There is a twofold reduction at work—a double metonymy, in Burke's terms: The marketing firm depends upon the word "green" to elicit the support of the consumer; the consumer jumps at the green carpet cleaner or the recyclable shopping bag in the belief that this one action constitutes green living. The reduction is a salve to the guilty conscience of the consumer whose piety leads her to act, but whose action is merely a gesture, not a true shift in allegiance to the whole complex set of behaviors that would indicate environmentally responsible living. More likely to change behavior in the short and long terms is an organization's choice to use the term "green" or "greening" as a banner under which it would offer classes in composting, plots of land for a community garden, glass instead of Styrofoam products, and would reduce electricity consumption by installing low-energy windows on exterior walls.

Certainly, it is an oversimplification of Burke to suggest that any single instance of synecdotic representation and reciprocity is capable of curing humankind's ambitions. Burke would say that danger lurks for the organization growing comfortably pious in its use of the label *green*, or any other reductive term, such as *350*. To be self-satisfied (and self-righteous) as the greenest organization in town is to surrender to motionless piety. But if the old piety is now impious, and the social movement leader must define the new piety in motivating terminology, what risks does the leader face in the process?

Piety, Migration of Terms, and the Social Movement Leader

Burke's definitions of *piety* as " the sense of what properly goes with what" in fitting things into "a unified whole" and "a desire to round things out" (*P & C* 71-79) elucidate the necessary work and the inevitable risks faced by a movement leader. In Burke's lexicon, *piety* is our devotion to a certain order of what social values properly accrue to a social position. In terms of circumferences, the movement leader's language creates a new scene to be occupied by the pious. The pious inhabit the new scene in an act of rejecting the impious—the established, corrupted old order to be abandoned or, in rare cases, to be reformed. The leader must define the reprehensible social behaviors to be abandoned, as well as the values and behaviors to be espoused by the movement. In the climate change movement, for example, the leader proclaims increased carbon emissions from extracting and burning fossil fuels as the behavior to be abandoned, in favor of adoption of sustainable energy sources such as wind and solar, supported by federal subsidies. The actions that properly belong to this new piety include driving a

Prius and installing solar panels, for instance. The new piety becomes the code of ethics for the movement's adherents occupying the new circumference.

One difficulty the movement leader faces is the description of undesirable behaviors and attitudes in terminology sufficiently condemnatory that her potential adherents first become aware of the naturalization of the old terminologies and then abandon them in order to move to a new scene of social action. To use Burke's example from "Boring from Within," the inhabitants of one circumference rarely notice the flags under which they have been marching. The "flag" could be any symbol of authority, including slogans, songs, code words, or a non-linguistic object. To be clear, it is not that the symbol of authority to which the pious have previously pledged allegiance was essentially faulty or corrupt from its inception; indeed, the symbol of authority—such as the automobile—might have been appropriate for a certain context, or scene, in Burke's terms. But, as Susan Langer argues, systems of philosophical terms and understandings have a lifespan. They are born in and of an era, serve the needs of that era, but when technological and social changes occur—when the planet warms—other terminology creates a new piety out of which arise possible solutions for an emerging problem.

Indeed, in the case of the automobile, its century-long authority over daily life in America has been substantial to the extent that it created the problem now in need of a very different symbol of authority. In order to create a new and credible symbol of authority, the movement leader must employ language that behaves simultaneously to both reduce and expand in the ongoing and disconcerting cycles of reorientation inherent in social movements. The leader reduces complex problems to organizational

slogans short enough to fit on a banner, while at the same time, employing those slogans to launch adherents out of their comfortable, familiar scenes into increasingly larger circumferences of influence in order to effect change. In essence, this move means abandoning a previously held set of beliefs to embrace a new set of values, or a new piety, the old beliefs now treated as impious. The vocabulary, or terministic screen, chosen by the social movement leader creates the new circumference for habitation by the pious. The process of moving away from one piety to embrace another, while unsettling, can be productive as long as the upheaval causes the pious to attend consciously to the terms under which they have been living and to choose conscientiously a new set of terms.

Approaches to the problem of global warming include dislodging scenic elements and pushing them onto center stage in order to expose to the pious their true nature as both agency and agent. For example, when an accumulation of what Burke describes as "agencies of communication" (*GM* 18)—his terms for twentieth-century technologies of transportation and communication—becomes scenic, they are so thoroughly integrated into the texture of our lives that they cease to be separate tools to use on occasion and become, instead, necessary for life itself and thus have a "motivating effect upon our political acts" (*GM* 18). The scenic nature of manufacturing and transportation tools that use fossil fuels makes change very difficult. The scene itself must be deconstructed convincingly and the scenic elements re-enlivened as agencies, or instruments, deliberately and conscientiously chosen or refused. The terminology of the American car culture illustrates such a migration of terms. From the 1950s, American drivers were naturalized into their car culture by advertisements such

as Chevrolet's "Drive the USA in your Chevrolet, America's the greatest land of all!" To equate driving a vehicle (fueled, of course, by petroleum) with adoration of one's country constitutes a conflation of pieties: Patriots drive cars across their beloved nation; the car becomes the mode through which this piety is exhibited: The more miles covered, the more patriotic. Over decades since this jingle, the terminology of the car culture has receded into the scenery to the extent that—90 trillion highway miles and 8 trillion gallons of gasoline (Lomax) and half a trillion tons of CO2 later (Gutierrez), we assume these elements as part of the background of our lives. To move fossil fuel and consequent carbon emissions from their scenic role into their actual function as agency and agent is the task Bill McKibben assumes as the leader of his social movement.

As the founder of *350.org*, McKibben must, on the one hand, reduce the circumference of both the human scene and the scene of the planet itself to one situation: The globe is warming to a catastrophic level at an unprecedented rate, and humans, who have caused the warming, must now assume new roles. On the other hand, McKibben's terminological circumference must work expansively because it delineates rhetorical spaces in overlapping, but far-flung physical and digital worlds, while inviting local acts of environmental action deployed throughout the ultimate circumference of the globe.[14] Nonetheless, McKibben's reduction of the complexities of global climate change to a single numeral—however necessary a reduction for the sake of establishing a movement—invites the ruinous perfection against which Burke

[14] Burke would appreciate the punning of "circumference" and "global," as in global warming and global catastrophe. See *A Rhetoric of Motives* 203 and Kastely 519. But the confusion of the *350.org* movement's name with the more familiar "360," as in degrees in a circle or points on the circumference of a literal circle, is a real problem, to which I will return in chapter 5.

cautions since reductions ignore the multiple motivations and overlapping scenes in which human life actually plays out.

McKibben is in a bind, then, as are all social movement leaders, because their message and the inherent "follow me" require terminological simplicity. He is obligated by his role as the leader of the 350 movement—and increasingly by his role as the public face of the entire environmental movement—to reduce the complexities of climate change to one figure, *350*. As the leader of the movement, McKibben must believe in one model of the universe and communicate the model in terms that will first motivate potential adherents to join his movement, then pressure their legislators to pass laws to support sustainable forms of energy to replace fossil fuels, and, in the best case, motivate them to reduce their own use of fossil fuels. Although human motives are complex, and, as Burke says, "there is room for many different versions of motivation" (*GM* 102), the social movement leader must convey only the one definitive model of the universe in which all humans will be motivated toward a single goal. For the sake of rallying support and gaining adherents, the work of the social movement leader is to reduce complexities to terse admonitions in postings to the *350.org* site, or in urgent letters sent to potential adherents and donors, or in earnest speeches before an advocacy event: Decreasing carbon emissions to 350 ppm is the whole of the struggle to mitigate climate change. And, in order to communicate this unitary message to millions of the globe's inhabitants who occupy many thousands of scenes, the leader becomes an evangelist, in Burke's view, dedicated to giving new meanings to those who will adhere to a new orientation (*A Rhetoric of Motive* 80). In other words, the movement leader moves his adherents into a new piety. How did Bill McKibben become the evangelist for

350.org, the new "religious" organization for those dedicated to reducing carbon emissions?

Bill McKibben's Rhetorical Identity: Reduction and Expansion of Circumferences

In this section I trace the development of Bill McKibben's rhetorical identity from environmental journalist to earnest leader and spokesman of an international movement. I argue that McKibben draws a circumference around the territory for his movement with increasingly rigid terms that include the environmentally pious but exclude the impious. In the last two decades, Bill McKibben has created a new circle for the environmentally pious under the banner of *350.org*, outside of which stand the forces whose own symbol of authority is the drilling rig. Those adherents within the fortress of piety accept McKibben's terminological limits as their own so that they may be considered activists within *350.org*. The *350.org* website claims hundreds of thousands of activists whose work is coordinated by staff living in fifteen different countries, but, since there is no membership roll, there is no way to verify membership numbers. Affiliation with *350.org* can be achieved with as minimal an action as composing and uploading a photo of an individual holding a hand-painted sign using the numerals *3*, *5,* and *0*. Even if the relatively few *350.org* members around the world are committed to a conscientious reduction of carbon emissions in their own lives and to pressuring their elected representatives to pass legislation to reduce dependence on fossil fuels, the *350.org* movement itself manifests insufficient political and social power to enact its goal of global compliance with the reduction of carbon emissions. As with other social movements, *350.org* seeks to increase its influence in part by increasing the number of its adherents, a goal that requires more than local activists uploading a photo

or even changing their own fossil fuel habits and lobbying for stricter carbon emission limits: Growth in the movement requires a leader. At least this is Bill McKibben's operational assumption, in spite of his pronouncements to the contrary.

Indeed, three claims that McKibben has articulated or enacted in the last four years demonstrate the conflict he feels between his life as a Vermont journalist and scholar and his role as the leader of a global social movement. The first is McKibben's acknowledgement that he would prefer to return to the pastoral setting of his beloved hills and woods but cannot do so until the crisis of global warming is resolved. The second is McKibben's claim, as conveyed on the *350.org* website, that his organization is a grassroots movement, generated and led at local sites where actions do not require a centralized administrative bureaucracy presided over by a single leader. Granted, the digital identity of *350.org* makes possible a wide distribution of its message, and, as I will demonstrate in a later section of this chapter, anyone may contribute to that message by uploading photographs of local actions. However, increasing the number of movement participants to an influential critical mass requires more than contributing to a digital photograph archive and driving fewer miles. Even a digital movement requires a leader who models the new orientation, exhorts adherents and potential members to accept it as well, but, most important, develops a public reputation as the spokesperson for the movement, capable of articulating its mission to a variety of audiences. By his actions as leader of *350.org*, McKibben demonstrates the third claim: He articulates the message of *350.org* with a fierce urgency, especially in its overt enmity with the fossil fuel industry, a tone that appears incompatible with the role of a pensive scholar, ostensibly his preferred identity. How did McKibben arrive at his

position as earnest, if reluctant, leader of a global environmental movement, a leader capable of moving audiences to enthusiastic approval with his spoken and written words, whose name and presence attracts both media attention and live bodies at speeches and rallies, and whose identity *350.org* consistently parlays to attract new members?

Throughout his career as a journalist, McKibben has probed the questions of humanity's relationship with the environment, moving from poetic lamentations in *The End of Nature*, to exhortations targeted toward potential adherents in the climate-change movement, and recently into outright confrontational rhetoric that challenges the fossil fuel industry as Earth's enemy. First serialized in *The New Yorker*—where McKibben wrote the "Talk of the Town" column from 1982 to 1989—*The End of Nature* moves the conversation about climate change into mass media. With this first book on climate change for a popular audience, McKibben entered and expanded the conversation about global warming, a conversation that had previously occurred in circles of science and environmental journals and policy institutes and occasional congressional hearings. Although James Hansen's testimony before the Senate Energy and Natural Resources Committee was reported in the *New York Times* and elsewhere (Shabekoff, "Global Warming Has Begun,") few enough members of the public realized the problem of global warming that Congress did not feel pressure to legislate carbon emission reductions.

Acknowledging his own difficulties in accessing credible references for *The End of Nature* on the relatively young science of global climate change, McKibben sought to expand the circumference of the conversation, illustrating to a broad popular audience

the influence of their behavior on the environment. However, in the introduction to the 2006 reissue of *The End of Nature*, Bill McKibben laments the lack of progress in political and social movements since 1989 to alleviate the ravages of climate change, in spite of an expanding array of entities that addressed global warming between 1989 and 2006. Reports to Congress by the Environmental Protection Agency, the National Research Council, the National Academy of Sciences, and the United Nations; and research by nonprofit environmental groups, such as the Worldwatch Institute, the World Resources Institute, the Environmental Policy Institute, the Natural Resources Defense Council, and the Environmental Defense Fund were published but did not achieve wide enough acceptance to influence public policy. Moreover, in spite of McKibben's efforts since 1989 and the broader circulation of these named sources, the problem of limited understanding of climate change science persists, as does the negligible legislative action to reduce carbon emissions. The reasons for the lack of acceptance of climate change science are the subject of chapter 4 in this study.

Between the publication of *The End of Nature* in 1989 and the founding of *350.org* in 2008, McKibben attempted to reach a popular audience for climate change science, but, as is true for social movements in general, the audience was not necessarily ready, much less eager, to hear the bad news about climate change. In fact, as is often the case in the formative stages of a social movement when the leader must create the exigence for change in initial communications, McKibben's pre-eminent task is to circumscribe the ideological territory clearly enough that potential adherents to his environmental movement see the lines of demarcation separating them from the impious establishment, that is the established order dominated by habitual and

unexamined consumption of fossil fuels. Thus the rhetorical situation, or scene, out of which *The End of Nature* emerges is characterized by three key factors: an uninformed, indifferent audience of potential acolytes in need of information known by only a few political figures and scientists; an impassioned leader in possession of the knowledge, now ready to pass it to acolytes in an act of piety; and, most important, a global—and physical—scene changed forever by the human agents acting upon it.

This last element—Earth as scene—provided the exigency prompting the two editions of *The End of Nature*, 1989 and 2006, as well as McKibben's 2003 work *Enough*. In both works McKibben laments the changes humans have wrought in the surrounding natural world, reshaping it "so thoroughly, now changing even its climate, that it reflects our habits and appetites and economies instead of offering us a doorway into a deeper world" (*Enough* 45-46). Not only does McKibben voice the myth of Nature as idyllic pastoral, but he also argues that humankind now produces its own context, resulting in a tamed, technologically enhanced—and thus artificial—world. In other words, the human agent creates the scene, not only in vocabulary, as Burke asserted, but physically. For McKibben, ruin lies ahead along two paths—both seemingly attractive, both provided by technologies, both equally disastrous. One path is defined by advances in genetics, nanotechnology, and robotics, the GNR technologies which, according to their engineers, promise to liberate us "from the limitations of our DNA, just as their predecessors freed us from the confines of the medieval worldview, or the local village, or the family. They can, they promise confidently, remove the ties that bind us . . . to remove one more of the stones that weigh us down" (*Enough* 47). The other path was created by the fossil fuel industry, whose coal, petroleum, and natural gas

provided heating, cooling, transportation, and manufacturing power for the last half millennium.

Both paths lead to catastrophe, in McKibben's view. The first, because losing an untamed, majestic environment as a defining scene—out of which we emerge, and which, heretofore, provided the constraints for us to overcome—means that we have lost our literal grounding. According to McKibben, once the GNR technologies have liberated us from most scenic constraints, we will have achieved what we misperceive as the ultimate level of individual freedom. Such hyper-individualism represents for McKibben another order of disaster because, as he sees it, only in community do humans realize their best selves. Paradoxically McKibben will seek to create a digital community with *350.org*. I will address below how McKibben attempts to resolve the paradox of intimacy in a virtual community. The second path to disaster, lined with gas cans, drilling rigs, and coal mines, is the warming of the earth by excessive carbon emissions in the atmosphere. In McKibben's view, there is nothing metaphoric or abstract about this catastrophe. It is the ultimate disaster in the ultimate scene. No abstract concept, such as hyperindividualism, exists apart from the context of the actual earth upon which embodied individuals must tread, however much they imagine themselves liberated from mortal constraints by GNR technologies. As McKibben says in *Enough*, "We are snipping the very last weight holding us to the ground, and when it's gone we will float silently away into the vacuum of meaninglessness" (47).

McKibben offers a modicum of hope for the future of the planet in that environmentalists have enjoyed some localized successes in promoting limits on technology and resource development even though to conceive of the whole planet as a

scene is almost beyond the human capacity to imagine. Notable is the twentieth-century choice to save the Grand Canyon from a dam across the Colorado River, a movement achieved by "rally[ing] people by appealing to the other parts of our nature, the parts that aren't always striving and questing and grasping. Not the limitless parts, but the limiting parts. The parts that understand beauty and scale, the parts that sympathize with the rest of creation, the parts that can imagine sufficiency" (*Enough* 207). McKibben's conclusion comes from a recognition that the concept of limitation is built into the deep religious sensibility of the human, not a doctrine, not a cult, but the call to limit our desires, sublimating them to something greater than ourselves (209). If we see *limits*, as did Kenneth Burke, as the constraints we create with our terminology, then in McKibben's view, the creation of those constraints comes somehow from an interior motive responding to "something greater than ourselves." Given McKibben's background as a Methodist, it is clear that he ties submission to limitations to his belief in the Deity. But, whereas the practical manifestation of submission to something greater was the saving of a cherished scene—the irreplaceable Grand Canyon—it is much more difficult for potential environmentalists in the era of climate change to define the entire Earth as an irreplaceable scene, infinitely more worthy of salvation. Because of its scale, humankind has a hard time acknowledging Earth as anything but a permanent and stable grounding, much less a vulnerable scene worthy of sacrifices in order to save it, sacrifices that would force global carbon emissions back to 350 ppm. In addition to McKibben's preserving Earth as a vulnerable scene of human life is his appeal to the power of science as both agency and agent.

The Evolving Rhetorical Purposes of McKibben's Use of *Science.*

Scientists Are Not to Be Trusted

From 1989 to 2009, Bill McKibben's use of the term *science* changes according to his rhetorical purposes, from general approval to general disapproval to selective use of science as both agent and agency in his appeal to prospective adherents to the cause of *350.org*. In this section I will examine the evolution in McKibben's treatment of science and scientists in light of Burke's concepts of piety and reductive simplicity. As I noted earlier, Burke defines piety as "a system-builder, a desire to round things out, to fit experiences together into a unified whole. . . . the sense of what properly goes with what" (*Permanence and Change* 74). Although *The End of Nature* is not primarily an argument for climate change remediation but more generally for acceptance of the role of nature as the fundamental context for humankind, in it McKibben treats science as a universally trustworthy ally in the study of climate change. However, a few years later, McKibben partitions off certain sciences and scientists as villainous—most prominently in his 2003 book *Enough*—thereby potentially demotivating adherents' deference to science as the ultimate authority—actually, an agent—capable of setting an agenda for the movement. Given the rhetorical responsibilities of a movement leader, though, by 2009, McKibben surrenders his careful distinctions between good and bad science and calls instead on a simplified view of the totality of science as an agent and instrument to motivate potential adherents to join the *350.org* movement. The question I am attempting to answer is whether the simplification of McKibben's use of science as a terministic screen effectively serves his rhetorical purpose as a movement leader to

corral adherents, or whether the move represents what Burke labels "an untrustworthy motivational reduction" (*GM* 101).

Before the rhetorical scene of climate change debate heats up in the 1990s, Bill McKibben refers to scientists in *The End of Nature* as a "community" (xvii), "gutsy" (xvi), beset by skeptics, oil and coal industry giants, and politicians, but stalwart, nonetheless in their presentation of scientific evidence to demonstrate how the climate is changing. Science in general, and especially the science of global warming, he argues, continues as a reliable tool to facilitate climate change legislation. In this work McKibben does not condemn science or technologies in general, except to caution his reading audience to use science as "a method of getting at truth . . . [about] nature" (70). In other words, for McKibben, science was not the end but the means of humanity's greater appreciation of nature, that "great, mad, profligate work of art" (74).

A major shift in terminology occurs in McKibben's condemnation of science and technology in *Enough*, a work whose purpose was to argue that limits on scientific discoveries are necessary and desirable. In *Enough*, McKibben constructs a dialectical relationship between the interests of human beings and the interests of most scientists and most technologies, except for climatology. Aside from climate scientists, whose work promotes humankind's survival, certain other categories of scientists are dangerous, according to McKibben, because they can be nimble and rhetorically savvy in promoting technologies that create an altered humanity, disengaged from nature and either enhanced or diminished by genetic engineering. Bad scientists know how to limit debate, that is, they know the advantage created by circumscribing the scene they believe most desirable. Technological visionaries—or less charitably, technozealots—

for example, would like to stop any debate about future technologies before it begins, claiming that technological change is inevitable and irresistible (*Enough* 163-64). McKibben argues that this "calculated attempt to demoralize the opposition" is a "bluff," merely a surrender to the cliché, "You can't fight city hall" (163). Technozealots phrase their positions rhetorically by employing the "slippery slope" argument, according to McKibben, and by blurring distinctions to create an irrefutable position: It is "too late to draw the line" between future technologies and those already at work within the human body: "people with hearing aids and artificial joints are protorobots"; using the Internet already compromises traditional notions of identity; birth control is already on the slippery slope of biological manipulation; hybridization in the food chain is genetic engineering (*Enough* 163-64). McKibben counters these positions by arguing that "such tools fall easily within the bounds of the traditionally human. . . . they don't make us uncomfortable, precisely because they don't tamper with our identity at a level deep enough to matter" (164). Technologies that tamper with human identity, according to McKibben, fall outside the circumference of acceptable uses of science and must be resisted.

McKibben marks off the limits of bad science with terminological screens, including snide labels for the scientists who escape their labs and move into the market place, the political domain, and the field of ethical discussion. The mixed metaphors of McKibben's dialectic are incongruous: "We stand precariously on the sharp ridge between the human past and the posthuman future, the moment when meaning might evaporate in a tangle of genes or chips. As we've seen, human meaning turns out to be fragile—we can either pile sandbags around it to keep it safe, or watch it wash away"

(198). Even the image of piling sandbags suggests reducing the circumference of the scene as if to preserve human life on the planet, similar to the way members of a community mark off a safe zone with sandbags when they face a flood. McKibben's language is replete with the terms that suggest a barrier, or screen, between what is acceptable and what goes beyond the necessary into a "technotopian fantasy" (143): "crossing lines" (4); "thin tissue" (10); "crossing the Rubicon" (84); "point of no return" (118); "threshold technology" (129); "door into another world" (5); "break down the door" (129); "break the ice" (129); "a certain point" (118); "a firebreak" (129); and the "enough point" (117). In the case of global warming, McKibben characterizes the situation as a crossing of a threshold: "That's how thresholds work: up to a certain point something is good, and past that point there's trouble. . . . A certain amount of carbon dioxide in the atmosphere helps keep our planet habitably warm, but now we're spewing so much of it from our tailpipes and power plants that we threaten the earth's equilibrium" (*Enough* 118). Each of these terms reveals a pattern in McKibben's worldview, an *us versus them* perspective that I argue balks action on climate change solutions.

In *Enough*, McKibben poses science as a nefarious agent poised to spring out of the labs of evil scientists, such as James Watson, who won the 1962 Nobel Prize for identifying DNA. Reserving particular opprobrium for Watson's position that genetic manipulation is both inevitable and advantageous, McKibben scorns Watson's "mere scientific genius" for its lack of specialized wisdom (*Enough* 183). McKibben argues that scientists are rendered corrupted and untrustworthy if they do any of the following: perform research in response to the market; yield to a hubristic urge to discover the

next great thing, regardless of the consequences to humanity or the Earth; pursue research goals as a means of acquiring political power; or, through advanced technologies, promote individualism as an ultimate goal, without regard for something as mystical as the sanctity of life or as ethical as human rights (*Enough* 184).

In other rhetorical situations, McKibben appears to engage science and scientists to work in behalf of his advocacy efforts, but he also cautions potential adherents not to believe too completely in the science and the scientists. McKibben sets apart as superior in their wisdom the thousands of climatologists studying global warming, whose data and evaluations stop short of suggesting "which taxes to raise or which technologies to ban" (*Enough* 183). Here, McKibben suggests that climatologists understand their limitations and, unlike geneticists, do not move outside their self-imposed circumference. He seems to say, Look at the science of global warming. Listen to (some of the) scientists. Surely their evidence can persuade you. But, beware: Scientists in general are money-and power-hungry rogues (*Enough* 181-2). He is equally dismissive of bioethicists, who are "captives of science and industry" (*Enough* 185) because of funding for experiments and because of their scientific ideology. According to McKibben, scientists' participation in any debate about technologies will be marked by false smiles and condescension to their intellectual inferiors, who, nonetheless, must be cosseted so that they will open their purse strings (35).

An additional target of McKibben's criticism in *Enough* is that applied science has indeed contributed to the problems of excessive CO2 in the atmosphere, particularly in the domain of the fossil fuel technologies of discovery, extraction, refining, and use. McKibben advocates "the kind of small and steady scientific and cultural progress we're

used to" in order to deal with poverty and illness, but he opposes the leaps advocated by "technotopians," changes which will categorically alter the world we currently inhabit" (143), especially if these technologies impoverish the planet by providing additional means of developing fossil fuel sources. Scientists are variously labeled "the lab boys" (12), an epithet that suggests irresponsibility and immature risk-taking; lords before whom we are used to "bowing and scraping" (117); "futurists" (117); technofaithful (149); technotopians (157); "digerati" (215). McKibben's proposal is to corral scientists or to sequester them in their labs, constrain them to their roles as "lab boys," ineffective outside the purview of experimentation, unable to enact the technology without the scrutiny and approval of an informed public: "While the vast majority of scientists and engineers should keep at their benches working small wonders for us, we might ask them to steer clear of new technologies so mighty as to change the essential nature of our bodies or our lives" (117). Each of these examples suggests a deep distrust of most science and most scientists.

Trust Science as an Agent in the Climate Change Debate

In this section, I will trace McKibben's employment of three terms *science*, *physics*, and *chemistry* as agents, beginning with his 1989 publications and through the fall of 2009 before the Copenhagen summit. As Bill McKibben enters fully into his leadership of *350.org*, his treatment of science continues to evolve. At times, McKibben separates science from scientists; at others, he personifies science as a stern giver of laws to be obeyed under penalty of annihilation. Between 2003 and 2009, McKibben's treatment of science—particularly physics and chemistry—as separated, isolated, and independent of their practitioners means that these three disciplines become at times

co-agents with scientists, not merely their agencies, or instruments. Scientists are not science; scientists practice science, but are not identical to the science they practice. Nonetheless, in the months before the UNFCCC in Copenhagen, McKibben increasingly called on science as the ultimate authority, as in the May 2009 editorial "Can *350.org* Save the World?" He argues that scientists identified the most important number in the world—350ppm; scientists say that figure represents the safe maximum of carbon particles in the atmosphere. Thus humankind cannot afford to ignore or remain ignorant of the principles of climate science, nor can humans fail to trust climate scientists. Fortunately, according to McKibben, a dream team of climate specialists in the administration of newly inaugurated President Obama had recently begun work on the problem by encouraging solar energy development and carbon sequestration technologies ("Securing American Energy").

In one area, McKibben concedes that new technologies hold some promise for solving a problem that other science and technology created, namely excessive CO2 emissions from fossil fuels. McKibben suggests that it is possible for nanotechnology to create solutions to the problem of CO2 emissions since in recent years, the disciplines of chemistry, physics, and engineering have converged in the design of nanotech "machines" made of individual molecules. As of 2003, 300 or so companies world wide were working on nano-engineered products (*Enough* 79). McKibben reports the holy grail envisioned by nanotechnologists, here in the words of Ray Kurzweil:

> An assembler . . . roughly the size of a strand of DNA, able to move individual atoms around and put them precisely where you wanted them. . . . In essence, you would have a machine reproducing material at almost

> no cost, the way computers reproduce information. You could, theoretically, take such a universal assembling machine and toss some grass clippings in one end. The replicators would be able to seize the carbon in that grass, breaking down certain chemical bonds and constructing others, all according to a plan. (qtd in *Enough* 81)

Thus nanotechnology will solve, as Kurzweil claims, all of "humanity's material needs": abundant foods and building materials, without agriculture, air and water pollution; without fossil fuels (83). Although this scenario will be long in coming about, if it ever does, McKibben allows for its positive nature, but, otherwise, he neither advocates for nanotechnology's promise nor acknowledges the general advantages to contemporary life provided by fossil fuels in the progression from undeveloped resources to fully developed resources, enabling a nation to move from modest economic means to wealth. McKibben describes the corresponding development of pollution: "Getting rich means getting dirty" (*Deep Economy* 21). However, getting even richer translates into the luxury of clean air and the technology to achieve it (*Deep* 21).

The most prominent feature of Bill McKibben's lobbying efforts before the UNFCCC summit in Copenhagen was his pulling *science*, especially *physics* and *chemistry* out of their function in the scenery of Earth's drama and foregrounding their roles as agents. Reading this dramatic function of the three terms against his simultaneous use of *science* as nefarious exemplifies McKibben's conflicted use of science, a view I argued in the previous section. However, in this section I assert that McKibben's struggle to accommodate different, but predictable, rhetorical responsibilities as a social movement leader contributes to uses of science that appear at times incompatible with

his goal of attracting adherents to *350.org*. McKibben attempts to draw circumferences for the pious adherents of *350.org* using science, but with lines that at times move without warning or fade into nuances that cannot effectively move an army of environmental advocates toward their goal. In addition, McKibben characterizes *350.org*'s plan to combat global warming as simple—to change the topic of the international conversation so that 350 ppm of CO2 is its central feature. But at the same time, McKibben laments the miniscule size of the movement so far. This rhetorical move of simultaneous shrinking and enlarging may appear incongruous at first glance, but in truth, this is the rhetorical strategy of all social movements: reduce the message to a few key phrases, translate these into slogans that are easy to memorize; convey this message to the broadest possible audience, in the case of *350.org*, to the entire human population. Given the encouragement from President Obama's support of climate change science, it is not surprising that McKibben turns to the problem of public awareness of global warming: The public must listen to and believe scientists' warnings about anthropogenic global warming.

McKibben's use of science as agent demonstrates the point that it does not necessarily act in behalf of humanity, but imposes inflexible rules and limits, which when broken or transgressed, elicit a non-negotiable punishment. The physics and chemistry of the planet do not change, cannot negotiate, are not flexible in the face of humanity's habits and activities. In his 1995 essay "Not So Fast" for *The New York Times Magazine*, McKibben uses the stark language of "brute objectivity" and inflexible science: "The molecular structure of carbon dioxide" (69) will drive pragmatic, realistic, but heretical choices for "deep thrift, for self-restraint, for smaller families . . .

smaller homes, more food grown locally, repair instead of replacement" (69), heretical because these work against the mantra of economic development espoused since forever (70). Seven years later, in the May 2008 interview with Marianne Lavelle for *US News & World Report*, McKibben repeats the need for political leaders to begin and end their UNFCCC global warming negotiations with the essential science of carbon emissions. His actual words are more aggressive: "[Knowing] that 350 represents a certain level of safety . . . will shove these negotiations in the direction of science." In the direction of *science*, not justice or economic trade-offs or national sovereignty or sustainable development, but *science*, as if the knowledge of the science of climatology will be enough to affect the outcome of the UNFCCC talks among almost 200 parties.

Six months later, McKibben returns to the argument that the laws of physics and chemistry are not subject to amendments, nor do they allow for interpretation as do political laws ("President Obama's Big Climate Challenge"). Then in the move toward personification, McKibben argues, "[The laws of physics and chemistry] will be obeyed, like it or not." This line makes the scientific laws appear as stern taskmasters. In the same article, McKibben describes the "melting Arctic [as] the call from the repo man," and "If we keep increasing carbon any longer, the earth itself will make our efforts moot." These uses of the inanimate geophysical reality of the globe as agents of punishment suggest McKibben's belief in the irrevocable nature of nature.

In "Can *350.org* Save the World?" McKibben argues that science demands changes, changes that are possible only if environmentalists unite in a powerful movement that will reach all the capitals of the world in anticipation of the UNFCCC negotiations. Also in this piece, McKibben employs physics and chemistry as agents to

emphasis their inflexibility in the face of human activity: "The trouble is, physics and chemistry aren't adjusting their schedule to fit our political and economic convenience." Nor do physics and chemistry "haggle" or "negotiate" with human beings even though, as McKibben puts it, "a deal has to be struck with the climate itself" ("Earth to Obama"). In addition, juxtaposing political realism against scientific realism, McKibben argues that the most recent science on climate change can make demands and establish requirements of humanity; and scientific realism can also demand that a deal be reached; "scientific realism holds the trump card" (14). The global movement that comes closest to meeting "the demands of both science and justice" is the *350.org* movement (15). Finally, in the summer before the October IDCA and the December UNFCCC, McKibben responds to climate change deniers' efforts to discredit climate change research: "Chemistry and physics . . . have proved remarkably immune to the spin (maybe the laws of nature haven't bookmarked the right websites)" ("Beyond Radical"). For a journalist such as Bill McKibben to invoke physics and chemistry must be laughable to the physicists in the denialist community, if not altogether infuriating. It is interesting that at the same time McKibben, a mere journalist, is invoking chemistry and physics to bolster his case for reducing global emissions to 350 ppm, the physicists themselves were leading the charge against climate science, a science pretty far afield from their own training.

What are the implications of treating science, physics, and chemistry as agents? The dramatistic view can be read in the following way: The physics and chemistry of the Earth are part of her scene; Earth, as the ultimate scene, looks, smells, moves a certain way because of the physical and chemical processes that operate out of ordinary sight,

certainly not in center stage. Only in the rare cases of what we generally call "natural disasters," such as droughts, hurricanes, earthquakes, and tsunamis, does Earth call attention to herself. Humans, on the other hand, are the agents, active upon the stage of Earth, acting before her as backdrop for their choices, and upon her as foundation for their monuments. Humans may pause occasionally to admire Earth's grandeur or to cower in the face of her power, but, at least in the modern age, they have assumed that nothing they could do would alter the basic nature of the planet.[15] In this reading, the first key dramatistic ratio is the scene-act ratio: an action is called for because of the parameters of the scene, perhaps the overcoming of obstacles, as when a drought calls for new farming methods, or a hurricane requires renovation of an entire city. An additional ratio—the scene-agent—emphasizes the human's choice of actions as a result of the scene, as when as when a climber endeavors to top K-9, or a survivor endures a desert crossing or a shipwreck. In this ratio, the attributes of the human agent come to the fore: courage, endurance, or fortitude, perhaps cleverness. And, as

[15] Jonathan Schell treats nuclear holocaust as a peril with causes and consequences commensurate with those of global warming: "Both are the fruit of swollen human power—in the one case, the destructive power of war; in the other, the productive power of fossil-fuel energy. Both put stakes on the table of a magnitude never present before in human decision making. Both threaten life on a planetary scale. Both require a fully global response. Anyone concerned by the one should be concerned with the other. It would be a shame to save the Earth from slowly warming only to burn it up in an instant in a nuclear war" (*The Seventh Decade: The New Shape of Nuclear Danger*). I argue that the risk to the entire planet from global warming is more significant because it is a slow process whose evidence is detected unevenly across the planet. Evidence of global warming is undeniable to scientists and the publics who understand the science, but the more general public's perception of its danger is assuaged by its gradual accumulation and other factors I address in chapter 4 of this study. Whereas no one could deny the destructive power of a nuclear explosion, many people, including legislators, continue to deny the destructive force of global warming.

Burke argues, the agent becomes certain things, manifests certain behaviors, changes her identity because of the scene in which she acts.

However, by examining Bill McKibben's language, we see the workings of the Earth no longer as merely scenic properties, but, because of the previous actions of humankind, Earth's physical and chemical essentials are stepping forward to assert their own identities as agents capable of acting on human beings. Their agency comes as a direct result of humankind's mistreatment of them as scenic; actually McKibben would probably argue that they never were scenic, just relatively quiet agents, as long as humans did not abuse them.

The Founding of *350.org*

Bill McKibben's agenda as the founder and leader of the *350.org* movement in 2008 was to convince potential adherents, first that the Earth is the inescapable scene of all human experience, the uplifting as well as the degrading; and second, that, despite human agency in damaging the Earth, humans are capable of reversing the damage, but only if they—we—recognize the role of science in both the planet as scene and in the damaged atmosphere surrounding it. McKibben's twenty-year strategy has been to convince his audience that science—especially physics and chemistry—sets the ultimate constraints for human civilization on the planet: The irrevocable scientific principle that constrains humanity's survival is that an accumulation of more than 350 ppm of carbon in the atmosphere warms the planet to a point that renders unsustainable the civilization humans have built. In this section I will trace the development of *350.org* as it emerged from previous advocacy efforts. I contend that McKibben's use of superlatives as terministic screens demarcates the pious territory

inhabited by his adherents. Moreover, while McKibben's increasingly simplified use of science serves his rhetorical purpose during the early growth of *350.org* from the Walk Across Vermont in 2006 and the Step-It-Up campaign in 2007, I argue that McKibben's portrayal of science as both agent and agency in the scene of global climate change, while impassioned, ultimately presents so conflicted a scene that it falls short of eliciting international support for global climate change legislation.

Before 2008, McKibben and a handful of students from Middlebury College in Vermont collaborated on environmental action campaigns to draw attention to the problem of global warming. The *Burlington Free Press* described the five-day 2006 Walk Across Vermont organized by McKibben as more Sunday stroll toward picnic grounds than a social movement action against global warming: "In less than a month, with cooperation from other people (including environmental studies/English professor John Elder) and various organizations McKibben and friends put together an event that included gatherings on town greens, music at Battery Park, a Sunday morning service at a Charlotte church with a sermon by McKibben, and music and other activities on Sunday afternoon at Shelburne Farms" (Pollak). However, at the Battery Park Rally on day five, one thousand people witnessed the signing of a "Global Warming Pledge" by eight political figures, including Senate candidates Bernie Sanders (Ind) and Rich Tarrant (R) and House candidates Peter Welch (D) and Martha Rainville (R), according to the *Orlando Gallery*, a photo-journal by Greenpeace documentarian Jon Orlando ("The Road Not Taken"). The pledge expressed support for U.S. Senator Jim Jeffords's bill, the *Global Warming Pollution Reduction Act of 2006*, an amendment to the *Clean Air Act*, providing for carbon reductions beyond the 80% mark if "global atmospheric

concentrations exceed 450 parts per million or . . . [if] average global temperatures increase above 2 degrees Celsius (3.6 degrees Fahrenheit) above the pre-industrial average" (United States. Congress. Senate. Committee on Environment and Public Works. "Senator Jeffords Introduces Climate Change Bill"). The bill was referred to the Committee on Environment and Public Works on July 20, 2006, but died there. Thus, while raising awareness for some residents in Vermont, the Walk had a markedly limited effect on federal climate change legislation.

Following the Walk Across Vermont, McKibben and his colleagues founded stepitup.org, an open-sourced, web-based campaign in April 2007 for a National Day of Climate Action. The purpose of the day was to call political leaders' attention to global warming by accumulating to a digital archive photos of some 1400 demonstrations across all 50 states. The guide *Fight Global Warming Now* was published in October 2007, followed by a second campaign in November 2007. The purpose of both campaigns was to put immediate political pressure on leaders to enact legislation to reduce carbon emissions, but also to create a broad coalition of climate-action organizations to enlarge their collective influence. These organizations included 1Sky,[16] Greenpeace and The Climate Reality Project, whose chief spokesman is Al Gore. The Step It Up team included May Boeve, Jeremy Osborn, Phil Aroneanu, Jamie Henn, Jon Warnow, and Bill Bates, activists who were surprised by the demands of office work

[16] The infelicitous motto of 1 Sky was "Step It Up! Green Fingers of the World, Unite!" accompanied by a green fist with one finger (the index finger) extended to make the "I" in "It." The earnest promotional text strikes me as something from Onion: "Imagine thousands of green index fingers held high across the country, each connected to personal reasons for addressing global warming and together symbolizing the need for one, united call to action. The green finger represents 1 Sky, and in turn demonstrates widespread support for the 3 priorities we are all working so had to call for." 1Sky was absorbed by *350.org* in April 2011 in an email marked "Big Announcement."

necessary to martial forces for a movement, described by Warnow as " a blossoming internet-based social revolution" and a "web-powered campaign" ("The Step It Up Team"). Warnow, in particular, notes that he expected "high-paced action: hitting the streets for some old-fashioned community organizing, perhaps some media-savvy corporate campaigning, maybe even the occasional act of civil disobedience. But Step It Up needed a webmaster" ("The Step It Up Team").[17] Thus, the Step It Up work became the prototype for *350.org*, begun by McKibben and his team in 2008 as a digital site from which to launch both a social movement and a digital archive of local movement actions across international boundaries. This prototype both challenges and exemplifies Hauser and Whalen's contention that the electronic public is likely to be an isolated individual in a private space, whose connection to the social movement is by means of digital communication, a phenomenon to which I will return in the last section of this chapter.

From its inception, *350.org* foregrounded science as essential to its identity, according to Jeremy Osborn, a co-coordinator of Step It Up and later European Coordinator for *350.org* during the IDCA (Interview with Osborn). In his exhortations to present and potential adherents to *350.org*, McKibben drops his previous argument against some scientists' egotistical zealotry in the pursuit of genetic enhancements to human beings. Replacing the distinctions between good science (climatology) and bad science (genetic engineering, fossil fuel technologies), McKibben uses the term *science* as an all-purpose agency to convince his audiences that they must choose to reduce

[17] Herbert W. Simons described this need for clerical work as one of the rhetorical tasks that falls to the social movement leader.

carbon emissions in their own lives and pressure their legislators to pass corresponding laws.

A second principle on which *350.org* based its message was that face-to-face personal encounters be central to its operations, the digital work providing resources to support the embodied local actions (Interview with Osborn). According to Osborn, McKibben's friendship with James Hansen had provided him a good sense of the new scientific fact of 350 ppm of carbon in the atmosphere to inform the trajectory for the *350.org* campaign. Osborn's characterization of the exigence for the movement was that the number 350 ppm was not a point in the future, but a point in the past to get back to, a realization that represented a bit of a mental shift for the founders. To have the scientific data point be front and center offered an identity for *350.org* that was "quirky" but gave an urgency that would motivate the group's launch. An additional affordance of using a numeral as its name is that it would work all over the world with no translation necessary. In my view, however, a numeral, while not needing translation from one language to another, does need explanation: How does 350 differ from the more familiar and thus more memorable 360, as in the degrees of a circle? What difference could 350 particles of something practically invisible make in a million other invisible particles? And if we have already surpassed 350 ppm, what is the point of harping on 350? A casual visitor to 350.org might very well ask these and other questions, provided she actually stayed on the site long enough to ponder the numeral.

The IDCA: Localizing an International Gathering

To pressure the world's leaders before the UN Climate Summit in Copenhagen in December 2009, McKibben proposed that people all over the world assemble on or

before October 24, 2009, to compose and upload photographs that featured the numerals 3, 5, and 0, as well as a view of the geographical locale in which the photo was made ("Invitation"). The result was that "people at over 5200 events in 181 countries *came together* for the most widespread day of environmental action in the planet's history" (*350.org*, 1 December 2009, italics mine). The 22,000 archived photographs were available immediately for no charge through Flickr, and 345 of the photographs are currently available in one of 17 archived campaigns and projects at *350.org*. Although quite disparate in their own production values, all the photos are given equal rhetorical space at the website, a point Osborn emphasized since individuals with very small organizations would likely find it meaningful for their photographs to be given the same rhetorical space as those by enormous groups of people assembling for aerial photographs.

Figure 1.
350.org's International Day of Climate Action: Sydney, Australia.
24 Oct 2009

Figure 2.
350.org's International Day of Climate Action: Ghana.
24 Oct 2009

The single digital space through which *350.org* conveys its message focuses a visitor's attention on a diverse international movement unified in the belief that anthropogenic global warming must be and can be reversed. The physical context for the numeral 350 in the first photo is the iconic construction of the Sydney Opera House (See Figure 1). The dominant color is blue, repeated in the sky, the shadows of the domes, the water, and the umbrellas held presumably by individuals, whose faces and bodies are obscured by the umbrellas. The serenity of the color blue suggests that all is well, that rain is likely coming, but for now the sun shines, and the humans have umbrellas to provide shade. In contrast to the serenity of the color blue, the numeral 350 as constructed must communicate a dire warning of climate catastrophe. The central feature of the photo of the Ghanian school children (See Figure 2) is the children themselves with their hand-lettered signs. Although one might make the case that school children do what their teachers ask, *350.org* uses the photo to argue that children are a part of an international movement and it is their lives that are at stake.

Whereas previous social movements, such as the civil rights movement, enjoyed the possibility of activists linking arms and marching together in a single physical presence in a single locale with eyewitnesses and broadcast media, the IDCA's outcome is not defined only by physicality. Certainly the individual actions necessary for the composition of the photographs occur in real time and place, but the unity to be achieved by the day's action is a coming together in a digital space. The *copia* of the rhetoric exists not in the number of words spoken, figures employed, and anecdotes recalled by orators to a live audience, but in the amassing of mediated responses by activists who will likely never see one another across the sites of action. The Ghanian

school children will probably never see the Australians holding the blue umbrellas on the steps of the Sydney Opera House—except when both groups visit the digital album.

Gerard Hauser and Susan Whalen understand a digital public as a simultaneously immediate and mediated audience comprising agents who construct their own rhetorical space digitally and then participate in reciprocal action with unseen agents who enter the shared rhetorical space. Digital audience members will identify with a social movement, for example, if it communicates "a compelling attractive vision of the meaning of everyday life" (128). In previous social movements, such as labor or civil rights, adherents shared material conditions—"overt disparities based on class, race, and gender" (132)— that led to shared interests which then promoted social change. Members who inhabit a digital space, however, identify with a movement by participating in behaviors similar to those of *distant* members. "Thus," according to Hauser and Whalen, "rhetoric attendant to new social movements must maintain some sort of strong equilibrium between personal meaning and collective behavior" (129). It is the rhetoric of the movement that asserts control over members, a requirement that places a special burden of identification, or as Burke has it, separation from others on the basis of a "body of identifications" which derive persuasive power not from "exceptional rhetorical skill" (*A Rhetoric of Motive* 26), but from repetitions. And as we have all experienced, repetitions are certainly possible to an exponentially greater degree in the digital world than even in direct mail campaigns or telemarketing. On the IDCA and in the archive, the repetitions are in the numeral 350, as well as in the narratives suggested by the photos.

If face-to-face companionship is no longer an essential feature of current social

movements, such as the environmental movement, members of a digital public may now engage in wholly individual and wholly private actions (Hauser and Whalen 130), available to other members of the digital collective only to the extent of the interactivity of the online scene. But *350.org* expressly resists reduction of its message to activity online alone and goes beyond what Barbara Warnick describes as "user-to-document interactivity. . . . [wherein] the Web site invites users [as co-creators] to submit content . . . for others to read" (76). Each of the 5200 groups on the IDCA participates in the creation of the social movement by calling on the discursive element of the numerals 3, 5, and 0, and uses these as talismanic in combination with the affective elements of human faces and particular geographical locales to advocate for climate change. Although some manifestation of "350" appears in each photograph, its significance as a bit of concrete scientific data is subsumed by its symbolic nature. Given the range of ages, races, cultures, and geographies represented in the images, and because of the lack of source identifications easily accessible, it would be nearly impossible to track down and interview the participants to ascertain the extent of the their understanding of the science represented by "350." To some extent their understanding is not important to the image, nor to the event. What is important is the amassing of images, their international scope, and the power of the collection in an electronic archive to communicate to political figures, that all these individuals are "speaking" one message, with one voice: Reduce carbon omissions.

Social media critics such as Margo Gremmler and Joe Trippi separately described the IDCA event as "one of the strongest examples of social media optimization the world has ever seen." Even so, McKibben and Osborn expressed to me in separate interviews

that the overriding goal of *350.org*'s digital presence is to encourage face-to-face encounters among individuals in far-flung locations around the globe so that changes of behavior can be enacted through daily interaction with other embodied humans in the same locale. Their hope is that local groups meeting to plan a photograph for a digital archive will consequently commit to one another to reduce their own carbon emissions and continue their collective activism by making plans for political action, such as pressuring local representatives to change fossil fuel emission standards.

If a secondary goal of for local *350.org* groups is that they continue to meet to study the problem of carbon emissions, then it is possible that they may increase their own ability to articulate their concerns to local representatives. It remains to be seen whether the public is able to enter debates well equipped to defend their positions. Lee Salter predicted in 2003 that individual users of the Internet "will be increasingly herded along predefined enclosures, or channels . . . rendering the Internet just another colonized mass medium providing standardized information and discussion, limited interactivity, and everything the consumer needs to satisfy her or his manipulated material desires" (139). Setting aside successful marketing of user data in programs such as Facebook, there is evidence of resistance of the confinements of the Internet as "one-way propaganda platforms" (Salter 139). At the 2012 Computers and Writing Conference, for example, Annette Vee advocated teaching computer coding in writing classrooms so that "more people are able to use code to contribute to public discourse or solve their own problems, or just say what they want to say." Skills in coding may potentially equip participants to create their own messages on web pages and blogs that reduce their dependency on sponsored sites where pop-up advertisements might

dilute the activist's message. A public that considers literacy in coding commensurate with other literacies may very well be better equipped to participate as activists outside current avenues.

McKibben's International Potluck Supper: A Close Reading of the Oct 24 Speech

To explore the implications of Bill McKibben's simultaneously reductive and expansive rhetoric, I turn now to the speech McKibben filmed and posted to 350.org for immediate viewing on the morning of the International Day of Climate Action, October 24, 2009, now available on YouTube. In order for McKibben to make a persuasive case for climate change action, he must strike a balance between intimacy and expansiveness. In terms of circumferential logic, he must draw his viewers into an intimate circle of agents who are impassioned, unified, and empowered. At the same time, he must expand the circumference of *350.org*'s influence to every human on the planet so that their political representatives in Copenhagen do indeed enact policies to limit carbon emissions.

Bill McKibben's immediate goal in his exhortation to participants in the International Day of Climate Action is to reframe the global debate so that political leaders gathering in Copenhagen six weeks later will act on climate change policy through the United Nations and in their home countries. McKibben's speech has two sections, denoted explicitly as "the first thing I'd like to say" and "the second thing I'd like to say." Both markers create the pretense of intimacy of McKibben talking to a small group of friends, rather than to an international audience of thousands, unseen and unknown—in fact, most likely unknowable—to McKibben, but called on as fellows, nonetheless. Paired incongruously with that intimacy is McKibben's declaration that

what is at risk is the survival of the planet. This day's action taken by McKibben's friends is actually planetary in scope.

The first thing one notices about McKibben's speech, captured on the morning of October 24, 2009 for video transmission, is its setting. McKibben stands alone before the camera in a close shot that captures his face and the bare wall behind him. His *350.org* T-shirt is nearly the same color as the wall—institutional green. So tight a shot emphasizes his face—eyes behind rimless glasses, close-cropped hair, and genial smile. He is the lone actor in this movie, talking into a camera held by an unidentified videographer, with no other audience present. The intimacy of McKibben's address suggests his belief in a model of digital activism that requires the movement leader to communicate in the medium of video transmission, as distinguished from the powerful oratory of previous eras in grand scenes occupied by physical bodies. For example, one might recall the grandeur of Martin Luther King's speech in 1963 to some 100,000 eyewitnesses on the Washington Mall. As the leader of the civil rights movement in the 1960s, King was aware of his audience and responded to them rhetorically, invoking the pace of a call-and-response sermon. McKibben, on the other hand, does not speak to a live audience, but to a camera. His speech is intended for mediated transmission, not for an immediate audience.

McKibben's speech simultaneously narrows and enlarges the scope of the scenes of activism on October 24. His address to participants as friends marks them as intimates, while at the same time, he notes that they are "part of something very very large today." Thus the scope of the scene of the video is narrow; his address to participants is intimate; the participants' scene of reception through a digital portal—

presumably a computer—is likely small, although the video might conceivably be broadcast on a large screen visible by a large audience, individuals who might possibly be moved to act because of the speech, aside from any coordinated *350.org* action. In contrast, and more important, the desired *effect* of the action is global in scope. McKibben is asking participants "all around the world in more than 170 nations in dozens of languages in every time zone on every continent" to view their action as capable of "defen[ding] this planet." Another feature of enlarging the circumference of the IDCA scene is McKibben's reminder that his audience's scene is human civilization that is 10,000 years old. The very "patterns of rainfall and ice and sea level and season" typical of earth's climate are at such risk that urgent action is called for. McKibben uses the inclusive "we": "We rally," "We know," "We will not stand by" to increase his identification with the audience.

Not only are the viewers part of acts that are global in scope, but they are "part of something that matters." In the second part of the speech, McKibben outlines the two ways in which the IDCA matters. First, the audience members are embattled by "foes," as McKibben describes them, who are "some of the most powerful entities on the earth." The enemies of the climate change activists are wealthy, prone to speechifying, uninspired, and either ignorant or resistant to the "scientific reality" of climate change. The activists to whom McKibben speaks need his encouragement on this day because individually, they may feel isolated and impotent. McKibben appeals to their sense of belonging to an international movement, every participant of which is hearing the same message from the movement's leader, McKibben himself.

McKibben's humble appearance, his appeal to "friends," and his framing of the day's work as making a difference in the face of powerful foes, suggest his view of a David-and-Goliath struggle. Here, as elsewhere, climate activists are involved in a "struggle" or a "match"; more important, they have a "secret weapon." McKibben announces in an especially earnest tone that the secret weapon is "the power that comes from scientific observation."

Framed as a terministic screen, one must ask, "Into what manner of battle does one carry the weapon of *scientific observation*?" To begin with, McKibben is no longer distinguishing between good and bad science. For the sake of marshalling activists to his movement, he has abandoned the rhetorical move of dividing and defining climatology as superior to other sciences. *Climate science* has become synecdotic of all science; the only science that matters is what will convince his audience of the dangers of a warming planet. The term *scientific observation* assumes that the audience has a working knowledge of the scientific method, a somewhat ironic—if not troubling—assumption because of the implications of *observation*. Observation is passive, or at least relatively quiet, but not aggressive, and certainly not the weapon one might carry into war. Scientific observation requires an analytic frame of mind, not an attacker's stance. To observe requires distance and detachment, rather than engagement. What is the nature of a "power" that emanates from observation? A Zen master might say that all power for battle comes from observation—but of one's enemy and the situation, not as the weapon itself. In other words, one might observe the enemy and the situation in order to select from an arsenal the weapon best suited to defeat the enemy. But the weapon McKibben terms *powerful* is observation itself.

An additional irony of McKibben's assertion is that scientific observation is a "secret" weapon. Indeed, as Sharon Begley observes in 2010, scientists often create a veil of secrecy around their work, so much so that the lay person has no inkling of the method and goal of a given scientific study, no interest or worst of all, does not know that she should be interested.[18] McKibben's belief in the power of scientific observation falls into the trap, it seems to me, that ensnared Arthur Larson, as described in Robert Scott's analysis, "A Rhetoric of Facts: Arthur Larson's Stance as a Persuader." Larson, Director of U. S. Information Agency under President Eisenhower, left the government to found and direct the World Rule of Law Center at Duke University, often presenting to audiences in a calm and reasoned manner the facts of nuclear war's eminent dangers. Like Larson, McKibben appears to argue in this October 24 speech that *facts* presented in a clear, reasoned, well-ordered, concrete message make for an irrefutable case (Scott 131). If they know the facts, political leaders will of course be persuaded to reach realistic international agreements (130). In this view, knowledge of facts alone is persuasive. Scott points out that Larson assumed that he addressed "an interested, intelligent audience who [would] respect and use the facts he provides and who [would] be motivated by a few fundamental values which are ordinarily quite clear in his discourse" (133). As Scott observes, facts do not speak for themselves: "An unexamined commitment to a rhetoric of facts. . . is inconsistent with the facts of human involvement" (141). And since Bill McKibben's audience comprises human beings, he is obligated to acknowledge that the situation actually calls for appeals to emotion and to ethics, in addition to fact. In other words, to draw his audience into the circumference of

[18] The dangers of scientific secrecy and the consequent ignorance of scientific discovery on the part of the public is the subject of chapter 4.

350.org, and then to effectively propel them out to establish their own far-flung local scenes of advocacy, he must do more than reduce the complex planet and his audience members' complicated lives to one numeral.

In addition, McKibben asserts the need to defend scientific reality, a somewhat curious act, given that he believes in a "reality" that is self-evident, not vulnerable nor in need of defense. But his call during the speech to "[stand] up for scientific reality" suggests a number of competing warrants. First, science is in need of defenders because science cannot stand up for itself, or, better said, scientists cannot defend science; the defense must be enacted by rhetoric, given that defense of any issue is the domain of rhetoric. Contrariwise, McKibben asserts that his claims are inarguable, because, by its nature, scientific reality is indisputable. Apparently, McKibben sees no contradiction in these propositions, no conflict in the terministic screens he has set up. On the contrary, McKibben argues that the audience needs merely to be reminded that planet Earth warms or cools because of unalterable physical and chemical properties inherent in atoms and molecules: "We are reminding the world's leaders that they can give all the speeches they want, but that won't change the way that physics and chemistry operate on our earth." Making this claim that neither ignorance nor debate can alter the physics and chemistry of the Earth's reality is as close to facts as McKibben moves in the speech, aside from his citing of the numbers of events that day of more than 4000 across 170 nations. Thus, in this speech McKibben is not attempting to argue the facts of climate change, nor to explain the laws of thermodynamics, but is arguing that "the centerpiece of the debate over climate . . . [is] the number 350." He believes that the debate of this IDCA "will echo through Copenhagen and beyond." The circumference of the scene,

according to McKibben, will necessarily expand from the room in which he speaks, to the participants across the globe, and within six weeks, will contract again to the rooms in which the parties negotiating climate-change policy will gather to debate national action on global warming. Thus, McKibben's purpose is to urge his audience to participate in this day's photography collection. His method is to warmly encourage participants and to affirm their commitment to *350.org*, not to present the factual background that operates as the warrant for their collective action. In other words, participants need only use the numerals 3, 5, and 0 in their photographs; they do not have to demonstrate that they know the meaning and implications of the figure.

McKibben and the rest of *350.org* cannot afford to convey global warming as a mere fragment of a larger issue; global warming must be understood as the only issue. No social movement leader can afford the luxury of extended and complex discourse while he is on the soapbox. A soapbox is crushed under the weight of nuance. Only the light and fierce simplicity of a unitary doctrine proclaimed to the faithful and the interested can provide the lightness of being for a leader who seeks to create a global movement. As a journalist, McKibben might enjoy the luxury of seeking adherents through slow, complex argumentation, rather than harangue; rationality, not harassment. But as the leader of a social movement, he must reduce the circumference of the scene to one factor: more than 350 ppm of carbon is unsurvivable.

McKibben's Terministic Screens and the Pieties of *350.org*

McKibben's use of superlatives creates terministic screens that reflect the new pieties he wants adherents to adopt, while deflecting other values, such as an addiction to fossil fuels for transportation and other affordances of contemporary life. In his

"Small Change" column for *Orion Magazine* in 2007, McKibben argues that disasters driven by climate change—such as hurricanes, droughts, and floods—require such an enormous investment of resources that there is little human or physical capital left over to make progress on the actual causes of global warming. McKibben's claim, "the chance for progress on everything else evaporates," emphasizes his condemnation of the unwise short-term patches on "subcatastrophes" and the real global work to "bring the planet's careening systems under control right now—and by right now, I mean, speaking technically, right freaking now" ("The Crunch"). His sardonic tone and polite substitution of "freaking" for "fucking" suggest both the urgency of his message and the need to subdue his impatience with the slow and partial work on climate change both in advocacy circles and in Congressional debate. In this case, the enormity of the task of preserving "the physical stability of the planet" is made incongruous by its description in McKibben's column "Small Change" and by McKibben's attempt to rein in his ire. Here, as elsewhere, McKibben explicitly names the planet Earth as the "ground on which all beauty and human meaning are built" ("The Crunch"). Taken together, McKibben's writing of the column with the name "Small Change" and his claims therein about Earth as ultimate ground demonstrate the incongruity faced by McKibben's social movement. How might one column published six times a year in *Orion Magazine* convince enough readers to make small changes that will add up eventually to a planet-saving change? How might these readers join others in a single advocacy group to make a change as enormous as one that will save Earth from destruction?

McKibben reiterates the global scope of his vision for saving the planet during a 2008 interview with Marianne Lavelle of *U.S. News and World Report* on the occasion of

the publication of McKibben's anthology *American Earth: Environmental Writing Since Thoreau*. McKibben describes the goal of his organization *350.org*: "to convert the entire world economy off fossil fuel onto something else." Although here McKibben's articulation of *350.org*'s goal does not identify fossil fuel as the enemy of the planet, as do later expressions of purpose, McKibben does project the wholesale abandonment of a carbon-based economy as a desirable, and one presumes, feasible goal. In this interview, he minimizes the territory inhabited by other environmental advocacy organizations, such as the Sierra Club and the Wilderness Society and "whatever," as small-scale efforts to protect vulnerable pieces of the planet, like the Arctic Wildlife Refuge. He is dismissive of their efforts, not because he disapproves of their aims, but because global climate change requires a global effort far beyond the scope of these environmental groups, even though they are well established and considerably larger than *350.org*. Other superlatives appear in this interview: "Nobody's ever tried to do a global grass-roots movement"; the UNFCCC in Copenhagen is the "last real bite at the apple"; and "Our only real goal is to take this number and tattoo it into every human brain, so that everyone in the world, even if they know nothing else about climate, knows that 350 represents a certain level of safety" ("The Planet and the Power of the Pen"). In the same year, McKibben argues that Copenhagen offers "the last legitimate shot" at halting global warming, an option "the earth itself will make . . .moot . . . if we keep increasing carbon [the most frightening stuff on earth] any longer" ("President Obama's Big Climate Challenge"). Elsewhere, as in "Earth to Obama," he has said that nothing else compares with the catastrophe of global warming, which we face "at the last possible moment to make a major turn" (15). The terministic screen in a 2008

"Small Change" column—abandonment of community as the "saddest thing we've done"—is McKibben's attempt to find a solution for global warming in collective action ("Where Have All the Joiners Gone?"). A program of action within and among communities corrects for the hyperindividualism that McKibben condemns in this work as well as in *The End of Nature* and *Enough.*

Other instances of superlatives as terministic screens demonstrate McKibben's earnest struggle to name the factors contributing to climate change in order to halt it and remediate current damages. After all, as Burke expresses it in *A Grammar of Motives*, to assign an epithet states "the character of the object [and] at the same time contains an implicit program of action with regard to the object, thus serving as motive" (57). In several instances, it appears that McKibben yearns to characterize both problem and solution as simultaneously simple and complex, ultimately unhelpful characterizations. Just months before the Copenhagen summit, McKibben warned that even though the environmental movement was "one of the most selfless of advocacy efforts . . . [it's] nowhere big enough to take on the fossil fuel industry, the biggest player in our global economy" ("Can *350.org* Save the World?"), but with a "simple" plan involving the "most important number in the world [350]", local grassroots efforts can make a "groundswell" happen "fast" ("Can *350.org*"). Here again are the oversimplifications with which McKibben constructs his scene: one number—and an "arcane" one at that ("Can *350.org*"), but the most important number of all; a simple plan, but one which will involve every nation on the planet and will solve the whole planet's problem of global warming. Indeed, McKibben labels the United States' failure to lead in reduction of carbon emissions as a "simple" predicament caused by a few

environmentalists' small-scale lobbying within Washington, rather than building a vocal, visible, collective movement powerful enough to pressure Congress and the White House to support effective legislation ("President Obama's Big Climate Challenge"). Again, McKibben characterizes the global predicament as almost impossibly complex, but he also claims that it is simple enough to be solved by merely changing the scope of lobbying efforts. In the next sentence, however, he acknowledges that the negotiations in Copenhagen in December 2009 will be considerably more complex and significant than the flagging attempts in Congress. McKibben's rhetorical challenge as the leader of the *350.org* movement is to convince his audience that adherence to the mathematical limit of a certain number of particles of carbon in the atmosphere will solve the physical realities of climate change, will speed policy changes across the globe, and promote local change in individual lives.

Conclusion

In this chapter, I have explored an unresolved conflict for a social movement leader: To translate a complex global issue into simplistic slogans to persuade potential adherents to join the movement; or to ask potential adherents to learn the science behind the global issue in order to fully understand the risks of inaction. Moving adherents into the circumference of pious behavior in the case of carbon emissions means convincing them that their previous impious behavior is an eminent threat to themselves and an ongoing threat to human civilization. Activist Bill McKibben employs terms that reduce the problem of global warming to the proposition that fossil fuel technologies may no longer be treated as part of the scenery, assumed and stable. Instead the carbon culture must be brought out of its scenic role into the role of both

agent and agency in order to be interrogated as the chief offender on the globe. Rather than cast fossil fuel in the role of a heroic agent that powers a great nation, McKibben labels it the villain in the scene of global climate chaos. He asks potential adherents of the *350.org* cohort to take on a new belief system, or piety, that includes a code of behavior consistent with a lighter carbon footprint. The code is warranted by science, particularly the chemistry and physics of carbon emissions into the atmosphere. However, McKibben's conflicted attitude toward science undermines his general message.

McKibben's leadership in *350.org* gives him a print and digital platform from which to declare the tenets of the new piety. McKibben communicates with activists on the International Day of Climate Action by means of a video address available now on YouTube. The scene in which he performs this act of encouragement early on October 24, 2009, includes only his person and voice, apparently a move that suggests that his ethos is enough to carry the message to participants who are McKibben's friends by virtue of a shared enterprise: to persuade the political leaders gathering in Copenhagen in December that, for the sake of the whole world's population, they must cooperate to reduce global carbon emissions. McKibben's *friends* are his fellow activists. These activists across the world will successfully persuade their representatives to Copenhagen to approve of international treaties to reduce carbon emissions by amassing a digital photograph album to demonstrate the breadth of the demand across the globe. If the peoples of the world demand a change, their leaders must accede to the demand. In order to capture their loyalty to the cause, McKibben reduces his message to a simple mantra: Science says reduce carbon emissions.

However, the thousands of photographs from 5200 events featuring *350.org* do not have the same impact on political leaders as would an embodied mass demonstration in the streets of Copenhagen, or Washington or London, for that matter. And even if the adherents to *350.org* were present and vocal in Copenhagen in December of 2009, there is no guarantee that world leaders would take their presence as a warrant to advocate for carbon-reduction legislation once they returned to their own home countries.

The problem for Bill McKibben as a movement leader is whether the reduction to a simple set of terms is untrustworthy, as Burke cautions. McKibben has stripped out of his leadership rhetoric the nuanced and subtle distinctions that might elicit careful deliberation from a scholarly audience. In place of a complex argument, the effective movement leader must oversimplify: Crowds do not rally behind syllogisms; they cheer at slogans; they march behind signs. Is this the dangerous simplicity against which Burke warns? And even if they march in unity, is that unity persuasive to elected representatives? That is the matter for Chapter 4.

Chapter 4: Overcoming Trained Incapacity

> *If people persist longer than chickens in faulty orientation despite punishment, it is because the greater complexity of their problems, the vast networks of mutually sustained values and judgments, makes it more difficult for them to perceive the nature of the re-orientation required, and to select their means accordingly. They are the victims of a trained incapacity, since the very authority of their earlier ways interferes with the adoption of new ones*.
>
> Kenneth Burke, *Permanence and Change*

> *Man is the symbol-using (symbol-making, symbol-misusing) animal, inventor of the negative (or moralized by the negative), separated from his natural condition by instruments of his own making, goaded by the spirit of hierarchy (or moved by the sense of order), and rotten with perfection.*
>
> Burke*, Language as Symbolic Action*

The Authority of Earlier Ways

Change is hard, and the more complex the system one inhabits, the harder it is to realize that a belief or practice needs to be abandoned, much less to identify what elements of the system one is to abandon and what new elements might provide a path forward. Even more difficult is the circumstance of needing to abandon a whole system, which previously sustained and enriched life, but which now is destructive of life and all of life's systems. This is the basis for the claim made in the last decade by Bill McKibben and his environmental advocacy group *350.org*: Abandon the carbon-based system of life on planet Earth; adopt an altogether new and sustainable system.

Very difficult, given our centuries of dependence on fossil fuels to warm us, to light our homes, and to move us from here to there. Consider the mid-twentieth century words of President Dwight D. Eisenhower, as represented on a US Department of Transportation website celebrating the "Eisenhower Interstate Highway System": "Together, the united forces of our communication and transportation systems are dynamic elements in the very name we bear—United States. Without them, we would be a mere alliance of many separate parts." At the birth of a network of roads to span the continent, the authority of the office of the President of the United States comes to bear in lauding the automobile culture as patriotic. We drive the highways in order to unite the dozens of states and several regions of the nation. Highways and automobiles manifest both a geographical and metaphorical identity characterized by dynamism and power. And, although the President does not mention it, the apparently unlimited supply of fossil fuels is the key to moving vehicles across the interstate system. But his presumption about gasoline has the effect of moving a key element into the background of this celebratory scene, as the President constructs it. Indeed, over the decades since 1955, the highways themselves have receded into the background as have cars and the entire complex system that supports the car culture: It is there; it is good; it enables us to go and do the work of a united people. Even the high costs of fuel because of the 1973 oil embargo imposed by the Organization of Petroleum Exporting Countries (OPEC), according to Hal K. Rothman, failed to dampen worries about "the economic cost of locking up resources" (112) by limiting oil and coal production.[19] Thus after World War

[19] Although some pollution control legislation succeeded in this period, such as the *Clean Air Act* of 1963 and the *Clean Waters Act* of 1966, the oil industry argued successfully for exceptions that undermined genuine enforcement (Rothman 115): The

Two, automobiles—and trucks, trains, and aircraft, as well—became *instruments* of the identity of the nation, as well as tools of its economic wellbeing and then became scenic elements, assumed as part of the essential background of American life.

However, as Kenneth Burke observed, the authority that resides in (that we granted to) our decades-long immersion in the beliefs and practices of the fossil fuel culture interferes with our ability to apprehend new ways of living. And now, in 2014, when every ecosystem on the planet is threatened with chaotic and rapid change from anthropogenic global warming, we can little see what new ways to adopt or how to adopt them in order to preserve human civilization and the Earth's systems on which it depends. In addition, there remains active a coalition of climate-change deniers who reject the notion that change is called for even now. By incorporating climate change denial into a generalized inertia toward significant social change, the denialists exercise considerable media know-how to take advantage of the public's confusion and fear about changing their fossil fuel habits. I will define this inertia using Burke's concept of trained incapacity. As I reported in chapter 2 of this study, between 1989 and 2009, five legislative attempts to curb carbon emissions failed, and on May 10, 2013, the National Oceanic and Atmosphere Administration (NOAA) reported that "the daily mean concentration of carbon dioxide in the atmosphere surpassed 400 parts per million (ppm)" (United States Department of Commerce, "Carbon Dioxide at NOAA's Mauna Loa Observatory"), a milestone that did not surprise the scientists, but stands as evidence of

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Clean Waters Act imposed nearly insurmountable barriers to the federal government's ability to sue an oil company for spills from off-shore drilling. In addition, the *Clean Air Act* allowed the federal government, according to Rothman, "to intervene only at the request of states . . . . [O]nly eleven abatement cases were filed between 1965 and 1970" (115).

legislative failure, as well as the persuasive inadequacy environmental groups advocating for change. One would expect failures of this magnitude to result in punishments severe enough to motivate an international campaign to mitigate the effects of global warming. But we are indeed thoroughly incapacitated by our training in the consumption of carbon.

Is it still possible that the multiplying effects of climate change may yet function to overcome these incapacities? Have advocacy groups, scientists, and the mass media characterized the eminent punishments of global warming in language sufficiently alarming to motivate change, in spite of the success of the *denialiosphere*? What voice of authority is powerful enough to motivate change on the order called for by a global crisis? Is the voice of science, for example, authoritative enough to elicit the trust and cooperation of the American public to overcome their trained incapacity and adopt a new symbol of authority? What is the relationship between trained incapacity, devotion to a familiar set of beliefs—piety, in Burke's terms—and growing so skilled at delivering a message that one grows rotten with perfection?

My purpose in this chapter is to argue that manifestations of trained incapacity have so far thwarted the efforts of environmental advocacy groups, primarily *350.org*, to successfully re-orient the public to new ways of behaving, including incapacities generated by *350.org*'s own approach to advocacy. I argue that the rhetorical equipment that *350.org* brought to bear in its attempts to overcome obstacles before, during, and after the United Nations summit in Copenhagen was insufficient in most cases to overcome, as Burke phrases it, "vast networks of mutually sustained values and judgments," held by representatives to the summit. Moreover, Bill McKibben, founder of

350.org, holds a position in the debate about climate change as uncompromising as that of other stakeholders. These entrenched positions are themselves incapacities insofar as they disable actual solutions to the problem of global warming.

In this chapter, I will first examine Burke's theory of trained incapacity as the entrenched network of values and judgments, such as those *350.org* confronted in its struggle to alert world leaders to the looming catastrophe of anthropogenic global warming. The problem of motivating change on a national scale is exacerbated by the sheer scope of the public's resistance to change, a portrait I present next. Then, by employing Burke's concept of trained incapacity, I identify five obstacles against which *350.org* works. The first is the difficulty presented by the nature of scientific research in general and climate change science in particular, difficult for both the general public and policy leaders to apprehend because of resistance to acquiring the vocabulary to name and understand inherently complex and ambiguous concepts. More important, this incapacity is built into political leaders' expectations of the ways scientists communicate the science with the potential to affect public policy. A second obstacle is the built structure that is the United Nations, the sponsoring organization of the four IPCC reports and the 2009 Framework on Climate Change Convention in Copenhagen. Observed by skeptics, the UN appears to be an inbred organization, overwhelmed by its own bureaucracy; seen by an uninformed public, the UN appears either impotent to choose and enact an agenda that might encourage member nations to reduce carbon emissions, or to be an nefarious leviathan attempting to dominate the world.

A third incapacity, closely related to the first, occurs in mass media because journalists are trained to value a balanced treatment of their topics and sources, but

attempting balance in the presentation of climate change science as a debate between equally credentialed factions creates a false symmetry that misleads their audience. Fourth, fostering the public's incapacity to acknowledge anthropogenic global warming, the media machine of the climate-change denialists has successfully manipulated the public's perception of the threat of global warming. Denialists assert that the global warming scene does not exist as defined by environmentalists. The arguments they made first presented evidence to support the claim that global warming is not happening. In a shift of circumference, however, denialists assert that if global warming is occurring--that is, if that scene is granted as extant—then it is natural, and as Nature is a reflection of the will of God, then cycles of warming are good; increased CO2 is beneficial. The denialists' media campaign has succeeded to the extent that only eminent precipitating events, such as Superstorm Sandy or Typhoon Haiyan, appear capable of demonstrating that the planet is in sufficient danger to warrant political action in the United States to reduce carbon emissions. At the heart of this campaign, a particular group of scientists has worked for three decades to sow doubt about scientific research into climate change. In this section, I argue that the success of the denialists' campaign is due in part to their ability to attach climate change denial onto a larger set of beliefs, so that denial is wrapped whole cloth in a piety of political conservatism.

Finally, I argue that *350.org*'s promotion of a single approach to reducing carbon emissions illustrates the difficulties of disrupting and dislodging the incapacities already in place in its audience. As Bill McKibben himself acknowledged *after* Copenhagen, reducing carbon emissions requires profound changes in behaviors. And,

because we are subject to the authority of our earlier ways, change means finding and accepting a new authority that will govern new beliefs and consequent behaviors. But, ironically, McKibben himself has proven incapable of adopting a new view of climate change, maintaining, perhaps as befits a movement leader, a narrow perspective in the service of his movement. Thus, McKibben and the climate change denialists share their incapacity to change, modulate, moderate, or compromise their views in order to reduce carbon emissions and slow the rate of global warming.

Trained Incapacity and Piety: Permanent and Changeable Vocabulary

In *Permanence and Change*, Burke theorizes the relationship between a vocabulary shared by members of a group and the motives of the group:

> To discover in oneself the motives accepted by one's group is much the same thing as to use the language of one's group. . . . To explain one's conduct by the vocabulary of motives current among one's group is . . . simply interpreting with the only vocabulary he knows. One is stating his orientation, which involves a vocabulary of ought and ought-not, with attendant vocabulary of praiseworthy and blameworthy. (20-21)

Reversing the order of the clauses in the first claim yields this assertion: To use the vocabulary of the group to which one belongs reveals the motives of the group as a unit and of its individual members. Thus to analyze that vocabulary reveals some understanding of what the group desires and what moves the group toward those desired outcomes. Another consideration lies in the phrase "the only vocabulary he knows," a phrase that emphasizes the function of one's language to produce and reflect identity: Our vocabulary emerges from who we are; our identities are created by and

revealed in our words. We can articulate only what we have been taught, either indirectly from the influence of lived experience, by intuited knowledge, or by tutors whose training we submit to. Adopting a vocabulary means acquiring the terminology with which we express our experiences and our beliefs, insofar as we can make them explicit in language.

The belief system is an orientation—Burke also calls it *piety*—through which all experience is filtered and articulated in the vocabulary shared with others who hold the same or similar beliefs. Burke describes this group language as emerging from "the particular linguistic texture into which we are born" (*P & C* 36), suggesting that our social or economic context acculturates our language habits before we come to an age at which we might consciously choose them. With experience, however, we grow into an ability to "manipulate this linguistic texture to formulate . . . [new] relationships" (36). The various groups to which we belong at any stage of our lives provide the "linguistic equipment" (36) with which we communicate to members of the groups and to those who do not belong. Thus, an analysis of the group's vocabulary yields information about the group's and the individual's motives. More important, the old terminological textures that persist reveal how and to what extent we are trained to think in certain patterns, as well as how and to what extent we are made incapable of thinking in entirely new patterns. It follows, then, that the only way we can understand new experiences is to squeeze them—Protean fashion—into the linguistic forms of our previous understanding. Thus an examination of the language of our group will reveal the incapacities into which we have been trained and our resistance to change.

An example from the study of public attitudes toward climate change illustrates Burke's theory. In the summary of conference findings from the 2006 Yale School of Forestry and Environmental Studies, David Abbasi identifies a number of factors contributing to the public's resistance to change: inertia, devotion to "long-lived energy infrastructure," "psychological barriers that complicate apprehension and processing of the issue, a "perceived remoteness" of the issue from everyday life, and a variety of "filters that cause social discounting or obfuscation of the threat" of global warming (17). Burke anticipated each of these factors in *Permanence and Change*, some seventy years before the Yale Studies, using instead of filters, as Abbasi does, the concept of a vast network of values that often go unnoticed, but which underpin the decisions by individuals unaware of their basis. It is this web of values that becomes a social norm. Burke warned especially of the potential for a socially dangerous practice to be individually advantageous (23). In the current case of global warming, individuals might perceive as an advantage their choice to own a car and drive it without consideration of the emissions it produces. A similar advantage lies in the heating of a home with coal or natural gas without regard to heat loss from poor insulation. Again, the decisions to own and drive a private car and to leave uninvestigated the nature and quality of one's home insulation emanate in part from social norms, as well as from individual needs and preferences. However, according to *350.org*'s appeal to individuals in local communities, it is the responsibility of the individual to retrain herself to recognize her unexamined use of fossil fuels and choose a lower carbon footprint. Otherwise these instances of individuals persisting in their faulty orientation will lead inevitably, according to *350.org*, to the social—indeed, the global—danger of

catastrophic climate change. Even in the light of this demonstrably "faulty orientation," Burke warns, individuals submit to the "authority of their earlier ways" (23) and thus resist change.

Furthermore, the incapacities into which each of us is trained—our pieties—are derived from an entire "framework of interpretation" by which we analyze, interpret, and evaluate the situations we enter (*P & C* 35). These frameworks lead us to conclude what reality is. Therefore, whoever—or whatever—controls the terminologies that construct our frameworks also controls how we judge the reality of a situation and our consequent actions in response to that reality. For example, if an environmental advocacy group selects the term *global warming* to describe the effect of carbon emissions higher than 350ppm, the group employs a scare tactic: Warming has no limit; the heating of the planet means a literal scorched earth. Other groups may use the term *climate change* to describe what is happening to the planet because of global warming. The term *climate change* is more neutral, and therefore less alarming: Change may be good or bad; change is inevitable, but unpredictable. Unpredictability is likely less frightening than unavoidable warming since it is not all inevitably in one direction—sometimes cool, sometimes warmer. When we begin to engage with relationships beyond our original linguistic group, as Burke argues, "we invent new terms, or apply our old vocabulary in new ways, attempting to socialize our position by so manipulating the linguistic equipment of our group that our particular additions or alterations can be shown to fit into the old texture" (36). Since the terminology of our indigenous cultural group provides the framework by which we first interpret reality, acquiring new terminology generates new frameworks that may represent a threat to the unity,

endurance, and stability of the original cultural group. If the original cultural group resists the new terms and new frameworks rather than incorporating them into a new reality, the group may very well deny that the new reality exists: This is the strategy of the climate change denialists I will explore in this chapter.

Burke's 1935 critique of the empty-headed American—his term for his contemporaries living the unexamined life—points to the paradox of trained incapacity. Burke's concerns at the time included critiques of flawed American institutions and practices that contributed to both cultural malaise, as George and Selzer argue (139), and to "cataclysmic shifts in the organization of the nation under war, prosperous peace, and depression" (*P&C* 33). In this historical context, Burke leveled a sharp criticism at the simplistic "groups of stimuli" (33) to which many Americans responded, "not highly complex at all, such as the lure of a new refrigerator, the fear of losing one's job, the distinction of smoking a certain brand of cigarette, etc." (33). Indeed, if one looked too far into the American head, one would be likely to find "something dangerously like total emptiness" (33). On the one hand, Burke laments the case of the American so untethered to her community's values as expressed in their shared language and motives that she grasps the most accessible solution to immediate problems, unable to see farther than her own needs. So unstable did the world appear to the typical American of that time, as Burke characterizes her, that she would cling to a simplistic means of immediately gratifying an impulse and avoiding most complex situations as beyond her ability to comprehend. Her grasping for the simple reveals what Burke describes as the alarming situation of rootlessness, or a "total blankness of expectancy as to how the world is going or where we [or she] might fit into it all" (33).

To have been set adrift from the motives of stable groups to which an American might have belonged in previous eras means that she is especially vulnerable to the urgings of simplistic, therefore safe, impulses. In previous eras, for a person to belong to a group would have meant sharing its stable and stabilizing language patterns; that is, to orient oneself to the world by means of "the vast networks of *mutually* sustained values and judgments," in Burke's view (23, italics added). But, as Burke argues, "nomadism [and] vast reversals from year to year in economic status" (33) have made unavailable those stable linguistic habits, and the motives they reveal and promote. It does not have to be literal economic shifts or the physical uprooting from one's community that threatens one's sense of what goes with what, or one's orientation, in Burke's language. It can be a threat of another kind, such as an encroaching worldview that differs from the one learned from childhood.

New information delivered by mass media about threats to one's planetary home, for example, can create the sort of drift that renders vulnerable, not just those already unmoored from a group and its linguistic underpinnings, but the human population entire, if one believes Bill McKibben and James Hansen's warnings about global warming. The drift and the subsequent search for stability might look like this example, simplified, to be sure, but illustrative of the dilemma: An individual is initiated into a fossil fuel culture, taught from childhood that cars are a necessary tool for daily life. Growing up in a community without buses, subways, light rail, or bike lanes might very well mean that she, like her neighbors, has never imagined daily life without a private car. This failure of imagination is another term for Burke's notion of the mutually sustained—and tacit—values that render the individual and her community

ignorant of a need to adopt new values and practices. That person entering adulthood around 2008 hears such dire warnings about the looming catastrophe of global warming that she begins to question her previous belief in the unqualified benefits of fossil fuel. To question a lifelong belief brings her into conflict with the previous generation's belief and practice. She searches for a new, equally trustworthy orientation to provide stability in the absence of her old set of beliefs. Or she re-orients herself to the group defending fossil fuel use and rejects the new orientation.

What are the implications of this process of inventing, manipulating, altering, and fitting of new terms into old linguistic frameworks? Our pieties change. However, if, as Burke defines it, "piety is a system-builder" (*P&C* 75), then piety functions to link "all the significant details of the day, . . . relating them integrally with one another by a complex interpretative network" (75). Our very speech, in fact, manifests "unconscious piety" (75) because it has been gradually acquired from infancy as a framework for interpreting life's experiences in the world. The stronger the piety, the stronger the allegiance to the group sharing the links. The strength of the group's bonds can be assessed by examining the extent to which the group employs a shared glossary to describe experience, and vice versa: The more attached we are to a group, the more likely we are to retain the terminology of the group. Thus we come back around to the concept of trained incapacity: Whereas much of the training one experiences is unconscious, when an individual reaches a point of linguistic accountability, she may begin to *choose* a new vocabulary on the way to constructing the new framework—or orientation, to use Burke's term—that will both reflect and shape the new ways in which she understands "how the world is put together" (81).

To return to the hypothetical twenty-something who begins to question her use of fossil fuel, we can see how her change of vocabulary reflects either her new orientation or her reaffirmation of the old one. She says, "I can't take that job twenty miles from my house because the commute is too long. It wastes gas and time. All that carbon!" Someone in her parents' generation responds, "It's a job. That's what is important." In this brief exchange, her priority appears to be protecting the environment; her parents', her economic potential. This conversation, though simplified, demonstrates competing pieties. The young woman chooses to learn a new glossary of values that, if maintained, will promote allegiance to a group whose members share those values. Of course, many factors, including her economic vulnerability, may drive her back to the group that values salary over clean air, as bald as that choice seems, and certainly some pieties are harder to escape than others because of the potential for social isolation. If one is alone in espousing a new value, it is difficult indeed to maintain the new terminology for oneself, even more daunting to strike out alone as the advocate of a new belief system powerful enough to create social change. As I stated earlier, the oil embargo of the early 1970s moved many consumers to select fuel-efficient cars from overseas manufacturers, but Detroit did not abandon their own models. And, although urgency about environmental protections began to build before 1970, devotion to a car culture endures now four decades later. Pieties, thus, are the incapacities into which we train ourselves, or into which we are trained unconsciously, and into which we allow ourselves to be trained by individuals, as in the case of social movement leaders.

Given this theoretical framework, the hurdles are substantial for changing people's minds about an issue described in the esoteric terminology of carbon emissions and then changing their orientation to car culture, perceived for decades not as a problem, but as the solution to many problems. Persistence in the fossil fuel habit is easier to understand in the light of this argument by Burke: "If people believe a belief and live, the fact of their survival tends to prove the adequacy of the belief. This is so because beliefs are not necessarily fatal—and because even dangerous beliefs may be of such a sort that they cannot easily be proved dangerous" (*P & C* 101). Never was there a truer observation about belief systems than this one applied to people's beliefs about global warming. We use gasoline; the burning of the fuel releases carbon and other wastes into the atmosphere; we are still alive. Why should we change?

But the question in my study is, Why do beliefs persist when confronted by purported facts to the contrary and when the beliefs themselves lead to varieties of punishment? What elements give rise to the durability of people's beliefs about global warming? In particular, do the affordances of the digital world of environmental advocacy re-establish a shared vocabulary as powerful as that encouraged by shared geography? The question, thus, is whether virtual linguistic communities have the same degree of power to compel new thinking, altered beliefs, and consequential changes in behavior.

One source of the permanence of beliefs is the individual's desire, as Burke says, "to confirm his solidarity with his group" (159). If one's social group does not espouse a belief that the planet is warming because of human behavior, then one is less likely to embrace that belief and act on it in such a way that would separate her from her tribe. It

is indeed a threat to the individual when the vocabulary of the group shifts away from familiar patterns, isolating the individual in a communication island. Also, when the individual chooses a new linguistic pattern, such as a adopting a new slogan by which to live, that individual risks separating herself from her previous social group on her way to embracing and being embraced by a new group. Indeed, to straddle two groups is as discomfiting as to be isolated from either. Both situations are circumstances few people choose. It is much more comfortable to maintain the incapacities into which we are trained. How broadly the incapacities persist and their variations over time demonstrate the limitations of social movement campaigns to change the belief system of an audience.

The Scope of Our Incapacity

Public concern in the United States for the environment in general is neither a new nor a monolithic phenomenon. The public has listened for decades to scientists and advocates on environmental issues, occasionally pushing their elected officials toward legislative redress, as in 1970 when the Environmental Protection Agency was established. Indeed, the rhetorical situation for the climate change debate is itself a diachronic situation; that is, it extends over time, rather than occurring in a single time and place. This prolonged rhetorical situation allows the time for conservation and other environmental organizations, as well as their opponents, to change public attitudes, but also requires that advocates maintain their efforts over time to reach their audiences. Some organized conservation efforts, such as the Sierra Club—founded in 1872—precede the age of the automobile. Scientists' worries about global warming in particular are decades old, as shown in the 1979 warning from the National Oceanic

and Atmospheric Administration: "Rising levels of carbon dioxide . . . will cause potentially catastrophic results to the world's economy and even to many life forms" (*Science Watch* C5). But science journals were not the only venue of information and advocacy about the environment. Even *Sports Illustrated* entered the conversation about the environment in 1976, with an extensive spread calling "environmentalism the No.1 American social enterprise . . . [involving] about four million Americans . . . [in some 200] special environmental interest groups" (Gilbert 53). Abbasi observes that by the time a 1979 study by the National Academy of Scientists was published, global warming was a widely accepted phenomenon, at least within the fraternity of scientists (35). In addition, since 1984, the United States Department of Defense has created a variety of contingency plans for continued national security and humanitarian assistance and disaster relief with the understanding that climate change is in fact occurring (*National Security Implications of Climate Change*). Thus, access to information about the environment in general and climate change in particular has been available to interested and informed parties.

However, over the last fifteen years, public awareness of, concern for, and knowledge about global warming has varied in intensity. Evidence of the variability comes from a broad array of polls conducted between 2000 and 2012. Krosnick, Holbrook, and Visser's 2000 study for *Public Understanding of Science* examined the effects of the Clinton administration's attempts to increase public support for the Kyoto Protocol in 1997. During the period July through September 1997, there were 214 newspaper stories and 12 television stories about global warming; from October through December, the period of the Clinton administration's campaign, there were 519

newspaper stories and 224 television stories, these last dominated by assertions that global warming exists (Krosnick, et al. 241). In spite of the expanded media coverage, however, beliefs about the existence of global warming and in a scientific consensus were little changed, and after December 1997, when the Kyoto deliberations ended, the media coverage itself fell sharply. The one difference noted by Krosnick et al. occurred in a marked polarization between strong Democrats' beliefs and those of strong Republicans: "Democratic citizens moved toward the [Clinton] administration's point of view at the same time that Republican citizens moved away" (253), a movement that included gaps in confidence that the federal government should act to reduce "air pollution" (253). One significant change was that, following the Clinton administration's media campaign about the Kyoto Protocol, approximately five million people, an increase of 22% from September to December of 1997, joined the ranks of those who considered global warming "an extremely important issue to them personally" (254). If this increased number acted on their beliefs by lobbying their legislators to ratify the Kyoto Protocol, the outcome might have been in favor of President Clinton's position. However, phone calls and letters to legislators are not the only factors in legislative success, nor are these genres of communication the only evidence of activism. At any rate, this increase in the number of interested persons did not result in ratification of the Kyoto Protocol, nor in the widespread change of individuals' fossil fuel consumption, nor in US legislation to reduce carbon emissions called for by *350.org* in the next decade.

In contrast, Jeffrey Kluger's 2006 assessment of public opinion about climate change and about the public trust in a scientific consensus is remarkable for its

optimism and assertiveness. He announced that, after five years of contention between environmentalists and lawmakers over the truth expressed by scientists in their grim forecasts, "the serious debate has quietly ended . . . [and] naysayers . . . have become a marginalized breed." According to the 2006 Time / ABC News/ Stanford University poll, as reported by Kluger, "85% of respondents agree that global warming probably is happening," and that same percentage believe that the government should act to reduce power-plant emissions and improve gasoline efficiency in cars. Even the Evangelical Christians, according to Kluger, were demanding that Congress regulate greenhouse gases. Thus, in the five year-period between the Krosnick study and Kluger's report of the *Time Magazine* poll, there is evidence of increased public awareness and concern about climate change. Moreover, polls by both the Pew Research Center for the People and the Press in 2006 and Leiserowitz, Maibach, and Roser-Renouf's 2008 study for the Yale School of Forestry and Environmental Studies indicate that 79% and 71%, respectively, of Americans believed that global warming was happening. In addition, Abbasi reports that Katherine Sierra, World Bank Vice President for Sustainable Development, predicted that world opinion would continue to favor government action on climate change strongly enough to achieve international accord at the December 2009 climate summit in Copenhagen (145).

However, between 2008 and 2010, things changed.

As I stated in chapter 2, the 2009 and 2010 polls by the Pew Research Center for the People and the Press reported that only 57% and 59% of those responding believed that global warming was happening, a decrease of 22% and 20%. The Yale study in 2010 reported that 57% shared that belief, a decrease of 14%. In addition, confidence in

a scientific consensus decreased, as did the number favoring federal government action to reduce carbon emissions. Abbasi reports that a poll about the complex problem of climate change, requiring collective action on a planetary scale, does not easily yield hard evidence about which of the many aspects of the problem or solution strategies the American people might favor (27). At least in part, the complexity of the problem of climate change and the lack of precision in data collection stalled the momentum for change.

Even a solid consensus in American's closest ally Great Britain did not persuade US leaders to act on climate change legislation before the Copenhagen summit. In a 2006 article for *Vanity Fair*, Mark Hertsgaard reported a popular consensus in Great Britain on the urgency of action to forestall climate change and mitigate imminent disaster. Queen Elizabeth herself, according to Hertsgaard's report, was sufficiently alarmed by the early arrival of spring and the threat of rising seas to her estate Sandringham in eastern England to advocate for Parliamentary action on climate change. Tony Juniper, executive director of the British arm of the environmental group Friends of the Earth, reported that a consensus of those in the UK willing to support legislation for reduced carbon emissions included political parties, the business community, the fossil fuel industry, scientists, and the Church of England (Hertsgaard 200). Prime Minister Tony Blair met with President George Bush before the G-8 conference in Gleneagles Scotland in July 2005, to urge him to agree to carbon emission reductions, but the President refused, vetoing "all references to mandatory emissions cuts or timelines" in conference recommendations (Hertsgaard). The President expressed his refusal, as I stated in chapter 2, as a response to what he considered

incomplete and inconclusive science and likely economic damage from emission control legislation. His resistance came in spite of the unanimous statement released by the national science academies of all G-8 nations and China, India, and Brazil, to the effect that the gravity of global warming required immediate and concerted action. Thus, neither the scientific community nor the consensus of a close ally succeeded in shifting the US toward climate change legislation.

In the face of these declining numbers of Americans who believe that global warming is occurring, the advocacy group *350.org* attempted to educate audiences in Vermont, the nation, and then by 2009, the whole world's population about the science of global warming and to persuade them of the dangers of high carbon emissions. Their hope was that by December 2009, enough momentum built by activists around the globe would force their political leaders to agree on carbon-emission reduction policies at the UN summit in Copenhagen, and then act on those policies in their home countries. In spite of the eighteen months of international digital lobbying by *350.org* of potential adherents, and more specifically, in spite of their International Day of Climate Action on October 24, 2009, "Hopenhagen" produced no viable agreements; nor have climate talks since then.

What factors have contributed to the failure of the United States to lead in climate-change legislation at home and to provide global leadership in reducing carbon emissions? As Burke observes, the entrenched authority of long-held beliefs engendered by "vast networks of mutually sustained values and judgments" makes change very difficult. Bill McKibben has long maintained that knowledge of carbon emission science should have the power to persuade the globe's citizens of the dangers

in which they live, enough to reduce their own carbon footprint and convince their legislators to regulate carbon emissions. Thus, McKibben appears to expect his audience to be persuaded by the reasonableness of climate change facts; however, his regard for facts, perhaps borne of his long study of nature and his training as a journalist, differs substantially from that of the nonspecialist audience. I turn now to describe the complicating questions of how scientific knowledge is produced, what climate science there is to learn, from what sources, delivered how, and to what extent acquisition of knowledge has the power to change people's minds and their consequent behavior.

How the Nature and Pace of Scientific Exploration Contribute to Public Resistance to Change

However much Bill McKibben and *350.org* would like to rely on precise scientific data to encourage support for their social movement opposing fossil fuels, information alone is seldom adequate to motivate activism, let along sweeping social change. In spite of this limitation, McKibben seeks simultaneously to create an audience for his digital advocacy and to increase the audience's receptivity to the motivating power of scientific information, a task made difficult in part by the nature and the pace of scientific research into climate change. Two elements in the nature of scientific exploration create barriers to understanding for the non-scientist. The first is the pace of exploration. To imagine a problem, design a research plan, find necessary material resources, conduct several—or many—series of experiments, draw conclusions, write and confer with others in the same discipline, confer across disciplinary lines, repeat experiments incorporating modifications suggested by conferences, write, submit,

revise, and perhaps publish—all take time. All of these painstakingly slow steps, as Spencer Weart argues in *The Discovery of Climate Change*, occur *within* the scientific community before any attempt is made to communicate even admittedly tenuous findings to the public at large, much less to political figures who expect to make policy recommendations based on the science. Even within a disciplinary community, *exploration, discover, and marching forward* are poor metaphors for the actual process of research science. As Weart describes it, scientific progress "looks more like a crowd of people scurrying about, some huddling together to exchange notes, others straining to hear a distant voice or shouting criticism across the hubbub. Everyone is moving in different directions, and it takes a while to see the overall trend" (1). And the *crowd* here comprises not layfolk but the teams of *scientists*, who are straining to hear and be heard. Eventually, through and beyond this tumult, comes a finding that may eventually contribute to the public's understanding of their world and to politicians' attempts to write policy.

An equally fundamental problem lies in the timescales of climate change itself. If advocacy groups often use the term *rapid* to describe global warming in the last fifty years, but evidence of the warming does not present itself readily to the public, then they may assert that the term *rapid* is indicative of unnecessary alarm. In fact, as James S. Risbey argues, climate change events such as "droughts and their impacts are frequently experienced as 'rapid' events because they are usually well underway before they are recognized" (28). In other words, the problem of convincing a skeptical audience that climate change must be addressed is in part the problem of asking people

to solve a problem before they see evidence that the problem exists.[20] Risbey argues that the phenomenon of inertia, an iteration of the timescales problem, further discourages policy action. Similar to the human behavior Burke described as *incapacity*, systems in the physical world exhibit *inertia* in certain geophysical contexts. Inertia in the earth's systems appears to delay what James S. Risbey calls the "commitment to impact" in climate change (28). This commitment is the inevitability of iceberg and ice sheet melting and the continued warming of oceans. The next evidence of the melting and warming is the rise of sea level. Risbey establishes the relationship between geophysical inertia and inaction by policy makers: "The inertias of the ocean and energy systems mean that we will be committed to a particular total warming well in advance

[20] Jodie Nicotra and Judith Totman Parrish argue against the language of urgency and in favor of a more deliberate and comprehensive understanding of climate change as understood by paleoclimatologists who work with deep time, "defined as older than 1.4 million years ago" (228). Seen from the deep time perspective, they argue, "climate has never *not* changed" (228). The implications for the public debate about climate change, and more importantly, for the science of climate change, are that ignoring the long timescales for study risks our losing "a complete understanding of the current (and possibly future) effects of humans on the climate" (229). Thus, for Nicotra and Parrish, the language of urgency and catastrophe thwarts reasonable and comprehensive consideration of climate change mitigation strategies.

In contrast, Marlia E. Banning, answering Nicotra and Parrish, argues that uncertainties about climate change science—indeed all sciences—must not forestall the necessary crafting of policies that will help to protect the poor who lack resources to protect their property or to relocate and the elderly who are least mobile; and to decrease the loss of soil moisture in currently arable land and the certain depletion of water resources for the growing world population, especially in densely packed urban areas likely to absorb displaced coastal residents ("Exigency" 645). Banning accuses Nicotra and Parrish of a "certain callousness about the fragility of life on the edge, whether that edge is a shoreline, poverty, or old age and infancy—conditions that universally tend to make humans more vulnerable and dependent" (647). In other words, the timescale advocated by Banning in 2011 and Risbey in 2008 is the *human* timescale, rather than deep time, a scale that may allow a deeper understanding of the planet's changes over eons, but provides little insight into the impact of global warming on current human populations. The human time frame does indeed urge an examination of fundamental rhetorical responsibilities of a movement leader.

of the point at which we observe it . . . .The slow start to emissions reductions and the inertia of the system make CO2 concentration targets that once seemed prudent harder to reach" (29-31).[21] In other words, policy makers seek concrete and immediate facts on which to base their efforts to pass mitigation legislation, but immediacy is not necessarily the value represented in climate change science.

The second problem inherent in science is that assertions in a scientific study are necessarily accompanied by disclaimers and qualifications that may suggest unsettling ambiguity to the non-scientist. The 2007 IPCC report describes uncertainty as "a steadfast companion [of those] analyzing the climate system, assessing future GHG [greenhouse gas] emissions, or the severity of climate change impacts, evaluating these impacts over many generations or estimating mitigation costs" (128). Moreover, even in 1992, when the IPCC first began its work, it cautioned against postponing climate change prevention and mitigation measures because of a "lack of full scientific certainty" (129). As Naomi Oreskes and Erik M. Conway observe, science provides neither certainty nor proof, but only "the consensus of experts, based on the organized accumulation and scrutiny of evidence" (*Merchants* 268). Such ambiguity does little to satisfy the public's desire for a "single linear narrative," as Weart puts it, that might

[21] Risbey provides this fuller explanation of the principle of inertia: "In the climate system, there is inertia in both the translation from carbon emissions to warming, and from warming to ice sheet melting. The thermal inertia of the oceans delays the warming by multiple decades after emissions occur. . . . Once warming does occur, sea level rise due to ice melt is delayed by further centuries depending on assumptions about the melt process. At any given point in time there is some amount of unrealized warming due to the thermal inertia of the oceans (converting current emissions to warming) and the inertia of the energy system in switching to non-carbon sources (converting future unavoidable carbon emissions to warming). This unrealized warming needs to be added to the present warming in order to arrive at the total warming already committed due to the human CO2 emissions pulse" (29).

answer their questions about climate change (1). And, since "uncertainty favors the status quo," according to Oreskes and Conway, there is little public will to change their own behavior or to press their legislators to carve out policy that would legislate reductions in carbon emissions (*Merchants* 267). It is very difficult to move variable science into policy if politicians insist upon conclusive evidence and scientists' unqualified recommendations, and these same politicians depend as well upon a groundswell of public opinion, especially since they must be elected or re-elected. As Weart argues, if a senator wants to know for sure if the "greenhouse effect will make his state wetter or dryer in the next century" (163), he will continue to be frustrated.

Ambiguity is especially a problem in climate change science, given its cross-disciplinary nature and the cooperation needed to create new knowledge. Climate change scientists must collect data from a variety of domains, not just from within the disciplinary boundaries such as those of astrophysics or molecular genetics, as Weart argues:

> Researchers cannot isolate meteorology from solar physics, pollution studies from computer science, oceanography from glacier ice chemistry, and so forth. The range of journals that climate researchers cite in their footnotes is remarkably broad. This sprawl is inevitable, when so many different factors do in fact influence climate. But the complexity imposes difficulties on those who try to reach solid conclusions abut (sic) climate change. (2)

The need of climate-change scientists to navigate among these disciplines creates manifold opportunities for miscommunication and ambiguity, even before this

information reaches the public. Abbasi argues that three problems exacerbate the difficulties of convincing the public of the imminent dangers of climate change because it is essentially a science-based problem. The first problem Abassi describes as

> the default tendency of those who seek to propagate the issue throughout society . . . to preserve its scientific trappings: by retaining scientific terminology, relying on scientists as lead messengers, and adhering to norms of scientific conservatism. Such practices can cause profound disconnects in how society interprets and acts on the climate change issue, and they deserve our remedial attention. (9)

Thus, while a public's understanding of the science of climate change is essential as a factor in convincing the public to change its behavior, scientists themselves have not succeeded in making their work accessible to the public. The disconnect between the general public's understanding of climate change and scientists' ability to communicate is illustrated by Abbasi's report that "scientists prefer the written word, whereas climate change needs to be portrayed more visually if it is going to resonate with a society increasingly gravitating away from the written word to the various visual media, whether TV imagery, animation, web games or other vehicles. A key image in this mix, at least on TV, needs to be human faces" (36).

Motivating a reorientation of human values and behaviors is made even more difficult because the warrants behind climate change arguments are themselves ambiguous, requiring careful study and nuanced thinking. Competing forces are at work even among those who are knowledgeable about climate science, complicating the effort to elicit public support for specific political moves and for the policy decisions

themselves. In *The Climate Fix*, Roger Pielke, argues, for example, that one phrase, "dangerous interference," from the United Nations Framework Convention on Climate Change (UNFCCC) of 2009 misleads by attempting to strip out ambiguity and create a straight line of logic from greenhouse gas emissions to global warming to legislation to limit GHGs. The phrase from Article 2 of the Convention defines climate change, as " 'greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous atmospheric interference with the climate system'" (Pielke 148). Pielke asserts that no such straight line exists because, in his words,

> [r]eality is much more complex. Society and the environment undergo constant and dramatic change as a result of human activities. People build on exposed coastlines and floodplains. Development, demographics, wealth, policies, and political leadership change and evolve over time. These factors and many more contribute to the vulnerability of populations to the impacts of climate-related phenomena. (149)

If, as Pielke argues, both policy makers and the public are confused by the very definitions of terms, then they are unlikely to promote or accept changes in their use of fossil fuels.

Computer modeling, one tool among many in climate change research, has come under particular scrutiny and criticism from climate change denialists, but not on the basis of climate data for their own sake, but on the trustworthiness of the methods of collecting and interpreting them, and by association, on the ethos of the scientists who employ models. In other words, climate change denialists created a new rhetorical

situation, or scene, circumscribed by the terminology of doubt regarding scientific models. Although common in many fields of scientific research, the use of models in climate change science has invited some in the denialist community to scorn the practice and the results it provides. Models are necessary to the study of climate change because, as Stewart Weart reminds us, we do not have another planet to use as a control while we experiment with our own. Thus, climate scientists observe the planet as it changes daily but also construct computer models from which to extrapolate what cannot be directly observed. As Oreskes and Conway describe it, the purpose of a model is "to explore domains that can't be explored otherwise; you build a model when you don't have access to the real thing—for reasons of time, space, practicality, cost, or morality " (*Merchants* 52). Moreover, according to Oreskes and Conway, "Every model is, in a sense, a conjecture, just as every scientific theory is. But just as theories are tested by observation, models are built on established theory and observation" (60). But, according to the denialists, the ambiguities inherent in all science are amplified by the use of models because of this need to extrapolate from them to describe previous climate data and predict future situations. The denialists claim these extrapolations are a means of manipulating climate data, thus rendering evidence derived from models unreliable.

Ben Santer, a climatologist at the Lawrence Livermore National Laboratory, was thrust into this rhetorical scene created by the denialists. He caught special grief from the climate change deniers for expressing confidence in the models he used to substantiate the recommendations for the 1995 IPCC Second Assessment Report, as I described in Chapter 2. He spent almost a year away from his actual research in efforts

to defend the models he and other climate change scientists use, the careful limitations on the claims he and the other scientists made in that report, and on his own reputation as a scientist. Even a decade after the Global Climate Coalition and other climate change deniers accused Santer of "scientific cleansing" in the 1995 IPCC report, Santer was defending his record and defending the use of models: "[A]t the Program for Climate Model Diagnosis and Intercomparison [at the Lawrence Livermore National Lab] our job is to confront climate models with reality. . . . We ask how well they simulate the present-day climate, the daily temperature cycle, the march of the seasons . . . [and] how faithfully they can reproduce climates of the distant past" (Thacker 5836). In spite of Santer's defense, extrapolation from models continues to contribute to public uncertainty when it faces questions about climate change, primarily because the denialist community has successfully promulgated doubt in their reliability, compounded by questioning the ethos of the scientists who use them. In sum, the slow, tentative accumulation of climate change science encourages neither the creation of a social movement nor the martialing of political will to enact carbon emissions legislation.

A related problem in the communication of climate-change science is the sheer volume of data produced by the various disciplines involved. Given that one aspect of the difficulty is the public's incapacity to see clearly which data actually matter, sorting through reports from multiple sources—mass media, science journals, UN documents, or websites—is a daunting task, one that few readers will take on. As Bill McKibben himself notes in February 2010 in "The Attack on Climate-Change Science," a three-page report is accessible for most readers, but the three thousand-page reports of the UN

IPCC present a barrier, rather than a treasure trove, of information on which to base an informed choice about personal behavior. And, certainly, with thousands of pages in thousands of documents, some errors are likely, errors that provide an opening to climate change deniers eager to exploit error of any kind and magnitude. McKibben cites two examples: from the latest IPCC report, an inaccurate prediction of the melting of Himalayan glaciers; and British scientists' emails from 2009 that raised questions about transparency of data. Pielke (194) characterizes this "Climategate" episode as a desire on the part of climate change scientists to pressure relevant journals into supporting their view of climate change out of fear that a broad review or assessment, as is required by the most rigorous scientific processes, might insert doubt about their conclusions. Such doubt, in turn, might be seized upon by the denialist community, and, worse, would serve as a disincentive to an uninformed or confused public. If the public gets wind of possible errors in the data, no matter the scale or number of the errors, they are even less likely to trust mass media reporters' or science journalists' summaries of the data and more likely to dismiss climate change science altogether. The email episode has since been defused by Edwards and Schneider, who also answer Ben Santer's critics; nonetheless, that episode presented yet another barrier for the public to overcome in their quest for reliable climate change science.

An additional problem in communicating the science of global warming is the emotional atmosphere in which the science is communicated. Abbasi argues that the more urgency with which scientists or environmental advocates warn of the consequences of global warming, the more likely the public is to discount the warnings as "unreasoned alarmism or even passion" (85). Thus Americans' actions in response to

global warming, as Abbasi argues, have not been "commensurate with the threat as characterized by mainstream science" (9).[22] Finally, Abbasi reports a rather perverse reaction to calling attention to the breadth of scientific consensus: "[A] special effort to exhibit a robust scientific consensus as the centerpiece of a communications campaign . . . almost instantaneously drew out those few scientists who disagreed – and with a ferocity that may have nullified the persuasive benefits of the consensus itself" (34), owing in part to the necessary role of skepticism in scientific exploration.

False Symmetry: The Mass Media as Obstacle

The role of journalists in the climate debate reinforces its emergence as a rhetorical situation as much as a scientific problem. In the introduction to the 2006 edition of *The End of Nature*, McKibben lauds journalists for their role in seeking "balance from the competing scientific camps" (xviii). This praise suggests that journalists are not merely reporting the debate, but are actually working in the public's behalf as arbiters between adversaries. However, McKibben's conflicted relationship with both journalists and scientists is made clear in a confession and condemnation from *Enough*: "Journalists are, like the rest of us, intimidated by scientists [who insist]:

[22] O'Keefe describes four factors in fear appeals, which if satisfied, may potentially move an audience to action: (1) persons perceive the threat to be quite severe; (2) persons perceive themselves to be vulnerable to the threat; (3) persons believe in the efficacy of a recommendation to avoid or alleviate the threat; and (4) persons believe in their ability to perform the recommended action (225-26). Risbey argues that fear by itself seldom motivates action: "If people are exhorted on the basis of fear, but are given no alternatives, then they tend not to respond. . . . When people are given full and open information about a threat and are included in the processes of defining and reacting to it, they are more likely to engage than if given partial information or limited roles and responsibility. . . . The critical factor is not the threat itself (fear), but whether it is conveyed in a credible and trustworthy way, along with credible, effective, and fair means of redress" (32).

We're scientists. We understand this better than you. Leave us alone" (180). In *Deep Economy*, McKibben condemns *The Wall Street Journal* in particular for treating "planetary ecological collapse" as a speed-bump for their presumably wealthy readers who are planning their vacations: "The *Wall Street Journal*, which has spent twenty years insisting that global warming is a left-wing hoax, recently ran an article titled 'The Global Climate Change Island Guide,' rating forty vacation destinations by their exposure to climate risk" (127-8). These two passages suggest that journalists assume the role of agents in the global warming debate when they translate technical language, for example, or investigate hidden sponsorships that climate change deniers might wish to hide, such as fossil fuel corporations' work in shaping the denialists' message, or promote indifference to the dangers of global warming by towing a publication's line. But, at the same time, journalists run the risk of being sidelined—or, to use the language of the dramatic scene, of becoming merely scenic elements—by the very scientists whose work requires explanation and dissemination.

A particular problem arises from the discipline of journalism itself. In the name of journalistic balance, the media have—erroneously, according to Boykoff and Boykoff—constructed the argument about the science of climate change as if the positions were backed by equal numbers of scientists. Readers of prominent US newspapers thus view the ongoing climate change debate as a battle between two equal sides, the denialists and the environmentalists. Oreskes and Conway argue that the Marshall Institute, a Washington, DC conservative think tank, began misrepresenting scientific evidence on climate change as early as 1989, when the Cold War was over and climate scientists had arrived at the consensus position that warming was indeed

occurring, likely because of human behavior ("Challenging Knowledge" 65). Not only did the Marshall Institute scientists claim that the science was "incomplete, inaccurate, or just plain wrong" (65), they insisted on a balanced coverage in the media, as if the scientific community were equally divided ("Challenging Knowledge" 64).[23] Boykoff and Boykoff demonstrate that between 1988 and 2002, print and broadcast media presented a skewed version of the debate. The authors apply the term "failed discursive translation" to the systematic, but skewed, presentation of unbalanced scientific claims, "rooted in journalistic norms and values" (134). In fact, "a remarkably high level of scientific consensus has emerged" on the issue of anthropogenic global warming (125), but American journalists have failed to convey that consensus in the attempt to present an unbiased view of the news. Marlia E. Banning emphasizes the degree to which the American public reduces "all civic discourse, critical argumentation, and any unwanted information—including scientific research—to just another viewpoint . . . a matter of opinion, and equally debatable" (298).

Confirming Boykoff and Boykoff, Pooley criticizes reporters for taking the default role of "stenographer—presenting a nominally balanced view of the [climate change] debate without questioning the validity of the arguments, sometimes even ignoring evidence that one side was twisting truth" (5). Instead of stenographer, Pooley recommends that journalists take on the role of referee to examine arguments about climate change for their underlying assumptions without becoming advocates. The disservice to the public in representing the climate change debate as if it were made by

[23] Knowing how to create the balance argument came easily to the Marshall Institute, since it had used the same ploy in its opposition to the Union of Concerned Scientists' opposition to the Strategic Defense Initiative during the Reagan administration (Oreskes and Conway, "Challenging Knowledge" 64).

two sides of equal merit, as Boykoff and Boykoff and Pooley see it, advanced Frank Luntz's script for the Republican Party and confirmed the media-management initiative of the American Petroleum Institute. As I argued in chapter 2, the nuances of scientific deliberation opened the rhetorical situation of climate change debate to co-opting by Luntz and other conservative media managers.

In addition, S. Frederick Singer, first director of the National Weather Satellite Service and President Ronald Reagan's chief scientist in the Department of Transportation (Oreskes and Conway, *Merchants* 5), created a relentless media campaign from 1989 to 2003, during which time, according to Oreskes and Conway, he published "at least thirty-five articles, letters, and op-ed pieces, many of which disputed the reality or significance of anthropogenic warming" ("Challenging Knowledge" 69). The pattern that had been successful during his offensive against the critics of President Reagan's Strategic Defense Initiative worked well against climate science. His strategy was rehearsed during campaigns against the Montreal Protocol to address the ozone depletion, against the dangers of secondhand smoke, and against the role of power plant emissions in the development of acid rain (Oreskes and Conway, "Challenging Knowledge" 70-74). A variety of websites and listservs picked up his arguments, as did conservative broadcast sources, with one goal, according to Oreskes and Conway: "to convince the public . . . to accept an interpretation well outside the mainstream of professional science" (69). To reiterate, the conservative media sources created and extended an echo chamber[24] that picked up and repeated—not new climate change

[24] Climate change deniers occupy space in the Denialosphere, a term applied to critics or skeptics of anthropogenic global warming. The pejorative term suggests a parallel universe inhabited by groups who hold one of three positions on global warming: "it's

science—but the arguments of Singer, Seitz, Jastrow, and Nierenberg that questioned the validity and reliability of actual climate change science, all in the name of undermining public confidence in a scientific consensus.

Banning describes this attempt at journalistic fairness as "a matter of symmetrical response" ("When" 286), amplified "by couching these texts in terms of a disagreement between equally positioned interlocutors in a controversy, with each side accusing the other of self-interest, suppressing dissent, and presenting ideological arguments. What is perhaps the most significant policy debate of our time is framed as partisan and symmetrical and reduced to primarily a political contest" (286). When the public's view of the global warming debate is reduced to viewpoints competing for acceptance, they generally find it easier to dismiss. Framing all discourse as political, in Banning's view, erases

> distinctions between fact and fiction, and [makes] knowledge—that is the result of research and based on evidence, reasoning, and peer review—equal to that of opinion, to which everyone is entitled but for which no evidence or reasoning is required. . . . Ultimately, this undermines the common reference world so essential to public information and deliberation. This is one outcome of a national environment that is increasingly controlled and choreographed behind the scenes by conservative, commercial, religious, and political groups that influence how knowledge is produced and distributed in society, and that portray

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not happening; it's happening and it's unstoppable, since [humans] are not the cause; it's happening and [humans] are the cause but it won't be so bad" (Pooley 37).

> all unwanted facts as political, a matter of opinion, and equally debatable. (298)

The false symmetry of the climate change debate continues to be promoted even incidentally in works such as David McCanless's textbook *Information Is Beautiful*, the purpose of which is to illustrate strategies for visualizing information. His illustration "Climate Sceptics (sic) vs. the Consensus" gives equal space on four consecutive pages to the case of skeptics and the case of scientists. It is telling that the skeptics are called *skeptics*, not scientists, but the other side is acknowledged with the term "scientific" (122-25). Thus, although McCanless does not necessarily take sides with the denialists or the scientists, his work promulgates the false symmetry responsible in part for public misconceptions about scientific consensus on climate change.

The problem persists. A more recent study by Karen Akerlof for the *Yale Forum on Climate Change and the Media* describes an additional problem in convincing the reading public and policy makers that consensus exists among climate change scientists. Long-range projections of climate change rely, as I described earlier, on computer models. As I argued, these models grow increasingly sophisticated in their ability to predict future climate change based on current conditions, historical data, and mathematical formulas. Akerlof says, "Models use mathematical representations of Earth's climate system and their interactions — such as radiation, energy transfer, surface processes, and chemistry — to evaluate changes over time in massive arrays of data crunched by supercomputers." The difficulty of the layperson's understanding of the complexity of climate change models is exacerbated by the relatively small number of science journalists who spend time or text inches to explain climate change models to

the lay reader. Consequently, argues Akerlof, popular media, such as *The New York Times*, *Washington Post*, *Wall Street Journal*, and *USA Today,* rarely mention climate models in their texts on climate change.[25] A third phenomenon is that when media do mention climate change models, the coverage is highly politicized. For example, media coverage of climate change peaked in 2007, in part because of the release of the fourth IPCC assessment report and the Nobel Prize awarded to IPCC and to Vice President Al Gore. In that year, *The Rush Limbaugh Show* and *The Nation* tied for the most programs or texts that mentioned climate models. These two media outlets at the extremes of the political spectrum and the somewhat less politicized National Public Radio program *Science Friday* are the channels through which the lay public receives its information about climate change modeling, but the audiences for these outlets are likely primed for the stories framed by terminology they already accept. In his 2014 "Lessons on Climate Change for the Republican Establishment," Limbaugh describes his audience as "the average low-information voter" incapable of understanding the science of climate change. Reminding his audience of the "Climate-gate" email accusations, Limbaugh accuses the nation's schools of journalism for promoting a corrupt left-wing world view, now responsible for reporting leftist climate change science. His effectiveness rests in part on the insistence that climate scientists themselves are corrupt and partially on the repetition of assertions that humans are simply not powerful enough to change the globe's climate.

[25] "From 1998 to 2010, on average, *The New York Times, Washington Post, Wall Street Journal,* and *USA Today* ran texts that mentioned climate models fewer than five times for every 100 times they addressed climate change or global warming. And that ratio has been decreasing. From 2007 to 2010, on average only two texts citing climate models appeared for every 100 articles on climate change" (Akerlof).

Akerlof argues that the burden of clear communication resides first with scientists who could provide online guides for journalists to explain the following difficult points: "how models work, what their role is in informing mitigation strategies and adaptation planning, why their projections are a legitimate form of climate science knowledge, and how their uncertainties relate to other risk information that people use daily, regarding their finances, health or the weather." In addition, she recommends that reporters create profiles of climate change scientists in order to humanize the abstract topic.

The arguments by Oreskes, Boykoff and Boykoff, Pielke, Pooley, Banning, and Akerlof suggest that if the public were only given accurate knowledge about global warming from credible sources, it would take corrective action to reduce carbon emissions. However, Paul Kellstedt, Sammy Zahran, and Arnold Vedlitz found that the more climate-change knowledge reported by the survey respondents and the more confidence they had in scientists, the less personal responsibility and less concern they felt for global warming. Their conclusions reflected this irony:

> Perhaps this [reduced personal responsibility and concern] simply reflects an abundance of confidence that scientists can engineer a set of solutions to mitigate any harmful effects of global warming. But it can not be comforting to the researchers in the scientific community that the more trust people have in them as scientists, the less concerned they are about their findings. (123)

The United Nations as Obstacle

As I stated in chapter 2, the espoused virtues of the UN's IPCC are scientific comprehensibility, objectivity, transparency, and relevance in providing counsel about options for adaptation to climate change and for mitigation of its effects. In spite of the IPCC's early and ongoing efforts to establish its credibility, a number of factors rendered it vulnerable to attack from the climate-change denialist community. The first is its fundamental identification with the United Nations, an organization accused by climate change denialists of disguising its ultimate goal to establish a world government that would supersede national—notably United States—hegemony. Their theory was that, if the UN operates with nefarious motives, all of its branches, including the IPCC, must also be treated as untrustworthy, or according to Oreskes and Conway, as merely mechanisms for achieving a new world order ("Challenging Knowledge" 77). Since the IPCC is a manifestation of the attempts of the UN to unify and coordinate its work on the environment, it is automatically suspect. Denialists inveighed against aligning US policy with any entity outside the US, except as it offers the potential to further US interests. The NATO alliance is acceptable because it supports US military positions; the UN is less acceptable if it imposes limits on US hegemony. Thus the sponsoring organization of the world's most comprehensive clearinghouse of climate change science remains an obstacle to any potential change of behavior as long as the denialists are able to merge the identity of the IPCC with the UN's.

The second manner in which the IPCC operates as an obstacle to abandoning entrenched consumption of fossil fuels is its almost incomprehensible layers of organization. The parent organization of the IPCC, the World Meteorological

Organization (WMO) attempted in September of 2009 to unify the UN work on climate change by creating yet another agency, the Global Framework on Climate Services (GFCS). The key terms in its founding are "delivering as one on climate knowledge" and "facilitate and strengthen, not duplicate" climate change services ("GFCS Content"). Yet few people have heard of the Global Framework on Climate Services, but many people—at least those attending to climate change developments—are aware of the IPCC. So the attempt to consolidate and streamline climate change science and services immediately before the Copenhagen summit did not succeed in raising the agency's profile enough to address the trained incapacities that inhibit legislative action with member nations.

What I am suggesting is that observers of the UN's many environmental initiatives may indeed conclude that the UN is simply replicating the rhetorical situation it created from the 1970s with the creation of the UN Environment Programme to coordinate international environmental activities, duplicating its own message in order to convince the world community that it is doing *something* about global warming, but the *exact something* is lost again in the alphabet soup of the UN bureaucracy. What is the ongoing assumption? That in each demi-decade there will be a call to action, captured in the IPCC's assessment report, which apparently will not solve the problems described in the previous report, because even now, the need for a fifth in an infinite series of IPCC reports is assumed. Inaction is assumed. More, inaction appears to be institutionalized by the very agency whose task it is not just to call for action but to en-act by providing advisers to the individual member nations attempting to reduce their

fossil fuel consumption, establish sustainable sources of energy, and reforest eroded or degraded acreage.

In 2008 when *350.org* conceived of an attempt to affect the outcome of a conference international in scope—the United Nations Framework Conference on Climate Change—Bill McKibben acknowledged the audacity of their enterprise, but he used the difference in the scope of the organizations as an advantage. As I stated in chapter 3, McKibben viewed the members of *350.org* as a family, addressing them as kinfolk who might attend a potluck supper. His message, distributed digitally through *350.org* and reproduced in other media, attempted to persuade potential adherents to recognize their own role in global warming, reduce their consumption of carbon, then plan ways to alert their own neighbors to do the same, on the way to finding the means to influence their legislators to support climate change legislation. Each of these scenes of persuasion treated the individual simultaneously as a member of an audience capable of acting alone and in concert with others to influence behavior locally, nationally through elected representatives, and internationally for the International Day of Climate Change. McKibben characterized *350.org*'s identity as a grassroots organization whose power came from the creativity, determination, and agility of its relatively few but growing numbers and from its ability to connect across the globe in digital space.

The UN, on the other hand, is a behemoth, with a guaranteed audience of its 193 member nations. In this sense, the UN audience occupies a single rhetorical scene larger and deeper than *350.org* could aspire to, but its size and complexity in many ways render it slow and inflexible. The sheer number of UN entities and their nested and

overlapping identities and responsibilities may be read in several ways: First, since its inception in 1946, the UN has increased its influence through a multitude of efforts to improve the environment. It has been heavily invested in addressing environmental concerns, devoting considerable resources on many fronts to complex environmental problems. Alternatively, in a less charitable framing, any action the UN might conceive of is thwarted by the warren of committees, panels, and sub-groups which meet and achieve partial agreement from a limited number of countries on a limited number of initiatives, but—in the case of climate change—not from the world's biggest polluters. Burke describes this phenomenon as the "bureaucratization of the imaginative." As soon as an ideal is transmogrified into planning and implementation, a bureau is born and is capable of multiplying limbs from an apparently endless stock. In the case of the UN, the whole system then generates another conference which holds another event which garners a nanosecond of publicity, but all the machinations of all the layers of bureaucracy do not change the behaviors of many individuals on the planet, much less the policies and practices of whole nations. Thus, in this reading, the UN scenario is easy to dismiss as a bureaucratic nightmare incapable of prompting nations and individuals to act on the science that the IPCC claims is valid. In this view, the idealistic UNFCCC mandate once put into action is a pure example of the bureaucratization of the imaginative, the inevitable calamity of attempting to realize an ideal in the practical world.

How the Denialist Community Exploits Our Trained Incapacities and Remains Confined in Their Own

In this section of chapter 4, I turn to the trained incapacity of a group of scientists who engineered the backlash against the climate change movement, as early as the 1970 founding of the EPA. Frederick Seitz, Robert Jastrow, and William Nierenberg (joined later by Frederick Singer), physicists trained before World War II, seized on the public's need for certainty and, threatened by a variety of changes to their own orientation, began a campaign to undermine public trust in climate change science. This group of scientists had been disciplined into a rigid world view, or as Burke labels it, into a trained incapacity, by their education in elite institutions before World War II and by their access to political power and federal funding afterward. Not only did they fight changes to their own status quo as leaders in their fields, but they also deliberately took advantage of the public's own reluctance to change their orientation toward fossil fuel consumption. The focus of this section of chapter 4 is to analyze the networks of values and judgments of this particular group of scientists that rendered them incapable of accepting environmental science on the same footing as their own field of physics, while at the same time exploiting public confusion about climate change science.

As defined by Seitz, Jastrow, Nierenberg, and Singer, any environmental problem can best be solved by market forces, free of federal government regulation, and certainly free of foreign intervention. These three principles—capitalism, liberty, and national sovereignty—were linked in the ideology and vocabulary of the parties to a series of deliberate campaigns from 1988 to 2009 to undermine public confidence in

climate change science and forestall Congressional action to limit carbon emissions. In fact, as Rothman argues, protecting the environment became a political "litmus test" of political candidates of both parties that forced a dichotomy in which *compromise* on environmental regulation was defined as "an abdication of moral responsibility" (208), rather than a shared enterprise as in the establishment of the EPA. In spite of considerable success in providing a cleaner environment through federal regulations between 1965 and 2009, Americans could still be persuaded by the climate-change denialists that their economic futures and their identities as free citizens were threatened by regulations of fossil fuels.

The trio of Seitz, Jastrow, and Nierenberg emerged from an era in which they and other physicists had unparalleled access to federal funding for basic science and unimpeded access to decision-making bodies throughout three decades. Frederick Seitz's work on the atomic bomb during World War II established his reputation; later he was named president of the U.S. National Academy of Sciences (Oreskes and Conway, *Merchants* 5). Siegfried Fred Singer developed Earth observation satellites, was the first director of the National Weather Satellite Service and President Reagan's chief scientist in the Department of Transportation (5). William Nierenberg directed the Scripps Institution of Oceanography after helping to build the atomic bomb. Robert Jastrow directed the Goddard Institute for Space Studies. None of the four had particular expertise in environmental or health questions, but, as Oreskes and Conway argue, "they did have power and influence" (8).

In addition, Seitz, Nierenberg, Jastrow, and Singer believed in and took advantage of their own ethos, created over the decades from outstanding achievements

in science. In fact, it was their decades of training that rendered them simultaneously credible, but also incapable of accepting the validity of other values and judgments, namely those of the majority of climate scientists, whom they regarded as practicing at best a soft science, far below the mother science of physics. After all, it was physicists who created the atom bomb, ending World War II, and propelled American spacecraft beyond the confines of Earth. Founders of the George C. Marshall Institute in 1984, they promoted conservative policies, accepted financial supported from conservative financiers, and encouraged anti-environmental policies, as Myanna Lahsen argues, "in reaction to the move to the left pushed by protest politics in the 1960s and 1970s (207).[26] Lahsen observes that "decision makers at the top levels of the US government have looked or referred to them as sources for their interpretations of the threat of climate change, privileging their (non-peer-reviewed) Marshall Institute assessment report of climate change over that of the hundreds of scientist comprising the IPCC" (207). Indeed, none of these scientists publishes in the field of climate change science, nor do they submit articles to peer-reviewed journals. The Marshall Institute published

[26] Oreskes and Conway describe how Bill Nierenberg, chair of the Acid Rain Peer Review Panel, with the cooperation of the Reagan White House, and Fred Singer's editions, changed the national policy proposal on the mitigation of acid rain. They changed the order of the paragraphs and deleted certain troubling parts of the panel's press release draft and the panel's recommendation documents. They rewrote the opening of the press release and the panel's document to reframe both the problem and the process as less serious than the panel had concluded. They minimized the testimony of known experts and divided expert testimony into so many sections that policy makers would find it impossible to follow. They outright rejected some evidence as too unreliable for the basis of a policy, asserting without their own research evidence that this is so. They claimed that further research would be necessary to make certain of the scientific claims because the problem was infinitely complex. They argued that it was premature to offer recommendations for actual solutions, which would be economically too costly any way. And they recommended technical solutions that did not require federal regulation of industry (*Merchants of Doubt* 85-88).

the 1989 *Scientific Perspectives on the Greenhouse Problem*, edited by Seitz, Jastrow, and Nierenberg, a work that contained no original climate change research (Oreskes and Conway, *Merchants* 280, n.15). President George H. W. Bush referred to them as "my scientists," in his resistance to early reports supporting limitations on carbon emissions, suggesting that peer-review "is not necessarily a decisive factor in top-level political decision makers' selection of scientific evidence" (Lahsen 208).

The group of physicists grew in their ability to influence public opinion against climate change legislation, often characterizing it as an effort to ration fuel. They have enjoyed considerable power, credibility, and status among the climate change backlash community.[27] One case involving Frederick Seitz's denial of climate change illustrates both his presumptions of influence and its decline. The case is a rhetorical situation in which terminology, rather than climate science, provides grounds for the debate. Calling upon his reputation in the National Academy of Sciences, Frederick Seitz attaches his name and articulates his support for a particular arm of the denialist community, Arthur Robinson's Oregon Institute of Science and Medicine in the creation of the 1998 Global Warming Petition Project (GWPP). During the first circulation of the Petition by groups funded by the fossil fuel industry (Pooley 36), Robinson reported that 17,000 scientists had endorsed it. Relaunched in 2008 during the Congressional debates about limiting carbon emissions, Robinson asked the original signatories to enlist their colleagues, a campaign that netted the Petition Project another 15,000 endorsements of climate change skeptics, according to Robinson. Robinson is not a

[27] Oriana Zill de Granados profiled Seitz, Singer, and others for the PBS Frontline Center for Investigative Reporting segment, *The Doubters of Global Warming*, 24 April 2007. De Granados describes Seitz's and Singer's preoccupation with the fear that environmentalists were moving toward rationing fuel.

climate scientist, and his institute was not affiliated with the state of Oregon. It sold DVDs about homeland defense, surviving nuclear war, and homeschooling materials for parents concerned about "socialism in education" (Pooley 42).

The Petition asks signatories to urge the United States government to reject the Kyoto Protocol and any other similar proposals. The rationale for this rejection is that "the proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind." Rejection of the Kyoto Protocol was a moot point in 2008, but the petition persisted because of its secondary aim: to persuade the public, in the language of the Petition, that

> there is no scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.

There was no narrative here, just an anti-narrative. The primary rhetorical tool is the amassing—the copia of—names of people who have some kind of science degree.

Robinson borrows a strategy from the American Petroleum Institute's Action Plan for the media and the 2002 Frank Luntz memo: actively recruit scientists, engineers, and other research experts who will challenge the global warming scenarios promoted by the environmentalists (Luntz 138). The homepage of the GWPP provides

ten green navigation buttons at the bottom of the screen and repeated down the left side. In the center of each subsequent screen is text that presents the basic argument that Al Gore and other environmentalists seek to ration fossil fuels. The link entitled "Letter from Frederick Seitz" presents Seitz's invitation to read a twelve-page article on climate change science. Seitz's work was in particle physics, but he was also a longtime paid consultant for the fossil fuel industry and for RJ Reynolds Tobacco, implicated in its cover-up of the hazards of smoking. Because Seitz's article so closely mimics the format of the *Proceedings of the National Academy of Sciences*, the article appears to be a peer-reviewed reprint from the *Proceedings*. Since Seitz's endorsement was not actually a publication of the National Academy, the Academy took the "extraordinary step of refuting the position of one of its former presidents" to assert that "the Academy did not support the position" taken in Seitz's document (National Academy of Sciences).

Seitz and the other physicists instigated the denialist media campaign, taking advantage of the public's ingrained resistance to the colossal changes advocated by climate change scientists and by *350.org*'s climate-change media machine. This group of *climate-change-deniers-cum-trainers* encouraged the public to resist a new framework of beliefs about the world. They took advantage of this incapacity, exploited it for their own advantage, and capitalized on it in order to regain and consolidate a power base eroded by the newer sciences of environmentalism. In other words, their objections to climate change science are not about the science, but about power. Banning describes this minority of scientists who "no longer reflect the developments produced by and accepted in their field" as clinging to "an older scientific paradigm" ("When" 291), dismissive of new developments in their field. Thomas Kuhn takes this observation a

step further, as Banning points out, to say that a scientist who persists in her former set of assumptions even after her colleagues have accepted the new orientation, has "ipso facto ceased to be a scientist" (Kuhn 159).

In the light of Burke's theory of trained incapacity, I argue that the "vast networks of mutually sustained values and judgments" emerged from the pre-World War II training in physics, networks established during their PhD work in physics at Columbia University (Jastrow and Nierenberg) and Princeton (Seitz and Singer), and values refined in the successful development of an atomic arsenal that was a key element in the battle against Communism during the Cold War (Lahsen 209-215). In addition, I concur with Lahsen's proposition that a certain "self-confident, skeptical, confrontation style of interaction . . . has propelled their resistance to the widespread concerns about human-induced climate change" (209). Lahsen describes the trio's "lack of receptivity," "normative frameworks," and "resistance to . . . recent historical forces" as evidence of their acceptance of science's role in solving virtually all of humankind's problems (209, 211). Their capacity as advisors to the White House during World War II and the Cold War, as Lahsen sees it, reinforced "their cultural ways of thinking and acting" and promote what an IPCC physicist describes as "a long-standing tradition in the physics community that holds that physicists can solve any problem just by thinking about it" (212). In other words, the university training Jastrow, Nierenberg, and Seitz received and their close association during World War II and the Cold War reinforced the authority of their education and their influence on public policy, indications that both science and power are integral to the allegiances and identifications scientists feel toward a group. However, as Lahsen argues, "these Marshall Institute physicists were

not trained as environmental scientists, did not publish in the field and were not part of the climate community, and they can therefore also not be said to be climate experts" (213). Moreover, they rejected the changing trend from "production science" to "impact science" (Lahsen 210); that is, from the value of science and technology to produce solutions to any and all problems faced by humankind, to the judgment that science and technology's impacts—in production of gasoline, in development of coal-powered electrical generators, and in the advancement of nuclear power—must now be critiqued by the consuming public, by policy makers, and by environmental activists.

Oreskes and Conway reinforce Lahsen's analysis of these physicists' motives in their work against climate change legislation, but move beyond her depiction of motive. Lahsen concludes that the physicists were not motivated by financial gain from work as consultants, especially given their widely held prestige in the science community. She argues that "they joined the backlash . . . to stem the changing tides, to defend deeply held values related to science and technology and to preserve the honor and prestige to which they felt entitled" (*Merchants* 216). Whereas Lahsen argues that the physicists' "ingrained dispositions" encourage a defense of what they consider a moral good, that is, "a normative framework that endows them with the prestige, respect, and funding to which they feel entitled" (214-5), Oreskes and Conway contend that Lahsen's other description of Jastrow, Nierenberg, and Seitz as "anti-communist, pro-capitalist, and anti-government interference" is more accurate ("Challenging Knowledge" 78). This distinction is important to my study because it reinforces my argument that the denialists' objections to climate-change legislation are not primarily grounded in morality, but in the economic power of the fossil fuel industry. In other words, the

denialists are building their own terminological screens to deflect attention from the fossil fuel empire and to refocus the public eye on the lost jobs and higher taxes if the treehuggers win. And, to use George Soros's label, "market fundamentalists," such as Jastrow, Neirenberg, Sietz, oppose all regulation of business and industry and draw a straight line from government regulation to socialism and totalitarian control of the world's economy and the world's resources.[28]

Oreskes and Conway argue, moreover, that this worldview presumes a simplistic, linear model of knowledge to policy: "If global warming were proven true, then government interference in free markets would necessarily follow. Thus, [the denialists] *had* to fight against the emerging consensus, either by challenging the scientific evidence directly or by creating the impression of ongoing scientific debate" ("Challenging Knowledge" 79, italics original). As I argued in chapter 2, this is also the stance of Frank Luntz: Luntz believes in the potential of accurate science to affect public policy; therefore, neither policy leaders nor the public must be convinced that the science is accurate. In sum, as Oreskes and Conway argue, "When scientific knowledge challenged their worldview, these men responded by challenging that knowledge" ("Challenging Knowledge" 80). Their rhetorical strategy of choosing one set of terms over another has proven to be successful in deflecting public attention from scientific knowledge held by a majority of climate scientists and substituting the terms of patriotism and economic threat.

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[28] See also Oreskes, "My Facts Are Better than Your Facts: Spreading Good News about Global Warming" in Howlett and Morgan, *How Well Do Facts Travel? The Dissemination of Reliable Knowledge*, in which she traces the 1991 media campaign by the Western Fuels Association (WFA) to discredit the science of global warming. Creating the Greening Earth Society, the WFA campaign argued that global warming from increased carbon emissions was beneficial.

The group affiliation for these physicists was stronger than the principles through which they gained access to the group. Jastrow, Nierenberg, and Seitz knew the important role of models in a variety of scientific contexts, yet they argued to the public that modeling and most other climate science was baseless conjecture, and thus untrustworthy. In other words, their fear of change, threats to their former power, and a real sense that they had the answers to problems but no one was listening any longer exacerbated their disenfranchisement. The terms under which they entered the field of power over politicians and federal funds had shifted, and they have been struggling for five decades to regain that power. They shifted their alliances from the White House Committee on Science to RJ Reynolds and the Heritage Foundation, and Congressional Republicans (Lahsen 214) where they found a group who still shared their language and their worldview: Oppose all market controls even if doing so required them to disavow proven science.

Attempts to Overcome the Trained Incapacities: **Replicating Rhetorical Scenes**

In spite of how many different authors have addressed, and different media have published, the exposés of Seitz, Singer, Lastrow, and Nierenberg, their media campaigns worked. Why is that? Oreskes and Conway are respected authors; Naomi Oreskes's reputation as a science historian is well established. Why did Mark Hertsgaard's 2006 exposé "While Washington Slept" in *Vanity Fair*, a widely read commercial publication, not wake up the President and Congress to the dangers of global warming? *350.org* has worked since 2008 to overcome the public's incapacities to accept limits on their use of fossil fuels, but legislation to limit carbon emissions or to impose a tax on fossil fuels

has yet to pass both Houses of Congress. Why have these and other climate change advocates not effectively countered the denialist campaign?

To begin with, Oreskes writes for two audiences, the academy—scientists and historians of science—and the nonscientist public. Her reputation is, indeed, that of a well-respected science historian with publications starting in 1990 in earth science, and following her interdisciplinary PhD in geology and history of science, she has published in journals such as *Science*, *Philosophy of Science*, and *Environmental Science*. Her first book, *The Rejection of Continental Drift: Theory and Method in American Earth Science* (1999), was followed by others on environmental regulations and climate change. Oreskes's influential 2004 essay "The Scientific Consensus on Climate Change," engages the scientific community[29] on the concept of consensus. It was cited by Al Gore in *An Inconvenient Truth*, led to Op-Ed pieces in the *Washington Post*, the *Los Angeles Times*, and the *San Francisco Chronicle*, and to Congressional testimony in the US Senate Committee on Environment and Public Works" ("Authors." *Merchants of Doubt.org*.). The audience of the peer-reviewed journal *Science* is other scientists who are likely members of the sponsoring organization, the American Association for the Advancement of Science. In each of these cases, Oreskes's audience is other scientists.

Certainly, Oreskes and her colleague Erik M. Conway also write for the general public in *Merchant of Doubt*, their most widely read work to date. But still her scholarly

[29] Oreskes's piece in *Science*'s "Beyond the Ivory Tower" essay series explains how policy-makers and the media use alleged uncertainty about climate science to argue "against adopting strong measures to reduce greenhouse gas emissions" (1686). In spite of claims made by Bush-administration officials and corporations with oil industry support of "substantive disagreement in the scientific community about the reality of anthropogenic climate change," Oreskes argues, the consensus among scientists is quite clear.

reading audience, the audiences for her lectures, and the readers of her occasional op-ed pieces for *The Washington Post*, *The Los Angeles Times*, or the *London Times* do not constitute an audience commensurate with those attracted to Rush Limbaugh, Glen Beck, or Mark Morano, or the audiences of the print and digital tools funded by the George C. Marshall Institute and the Global Climate Coalition.

Oreskes's language is adamant; her reasoning, carefully constructed, as befits the scholar. She builds her arguments about climate change on credible evidence from other scholars, including "all major scientific bodies in the United States whose members' expertise bears directly on the matter"—all unequivocal in their assertions that air and ocean temperatures are rising because of human activities. Oreskes invokes support of the IPCC claims from four organizations in particular: the National Academy of Sciences, the American Meteorological Society, the American Geophysical Union, and the American Association for the Advancement of Science. Oreskes reports that in her search of 928 articles in refereed science journals (from 1993 to 2003) containing the key term "global climate change," she found that none disagreed with the consensus position" (1686). The important element here is that, in the face of political questions about the UN's bona fides, credible scientific organizations filled with *American* scientists have arrived at the same conclusions. This move by Oreskes appears to offer reassurance that, although conservatives might doubt the *UN* findings, they would less likely question their own scientists' conclusions. In sum, then, Oreskes writes as a scholar for scholars, or at least for a very well educated audience interested in following a closely reasoned argument.

However, in spite of Oreskes's well-reasoned arguments, in her essay for *Science* there are four occasions when her measured and concessionary language might offer grounds for denialists searching for quote bits to use as evidence of scientists' lack of consensus. The first is the example above, in which she acknowledges that an organization cannot possibly represent the views of every one of its members and might "downplay legitimate dissenting opinions." But, as Oreskes points out, the examination of 928 articles confirms the hypothesis that there is consensus. Second, Oreskes concedes the following: "Admittedly, authors evaluating impacts, developing methods, or studying paleoclimatic change might believe that current climate change is natural" (1686). This concession acknowledges that some of the 928 articles do not address the question of whether human activity accounts for climate change, but of those that do, 75% accept the consensus view; the other 25% take no position; none disagreed.

The third opening for denialists is the acknowledgement that "the scientific consensus might . . . be wrong." But Oreskes takes a position basic to all scientists: "If the history of science teaches anything, it is humility, and no one can be faulted for failing to act on what is not known" (1686). And fourth, "many details about climate interactions are not well understood, and there are ample grounds for continued research to provide a better basis for understanding climate dynamics" (1686). As is true of any good argument, this one offers an invitation to engage in the ongoing conversation. Oreskes answers each of these concessions with the careful, moderated language of the scientist, but ends with the assertion that "there is a scientific consensus

on the reality of anthropogenic climate change. Climate scientists have repeatedly tried to make this clear. It is time for the rest of us to listen" (1686).

In a May 2005 response to Oreskes, Roger A. Pielke, Jr., author of *The Climate Fix: What Scientists and Politicians Won't Tell You About Global Warming*, takes issue with two aspects of Oreskes's essay. The first is about her implied definition of the term "consensus," which Pielke argues should not be taken to mean "uniformity of perspective" among the 928 articles she examined ("Consensus about Climate Change?"), but rather, "a measure of a central tendency [with] a distribution of perspectives around that central measure" ("Consensus?"). Oreskes responds by clarifying her research method: Sampling for the keywords "global climate change" did not reveal any papers that disagree with the consensus position. Her claim is not of unanimity, but that "statements and reports of leading scientific organizations . . . accurately reflect the evidence presented in the scientific literature" ("Response").

In addition, Pielke argues that two debates have now emerged as proxies for "political debate on climate policy." The first, on which Pielke and Oreskes both agree, is that denialists' arguments about the science of climate change deflect attention from policy debates ("Consensus about Climate Change?"). But it is Pielke who asserts that arguments—including Oreskes's—on the nature of consensus were also a needless distraction. In addition, Pielke argues that policy decisions should not be shaped in order to accommodate a central tendency, but "should be robust enough to accommodate the distribution of perspectives around that central measure, thus providing a buffer against the possibility that we might learn more in the future" ("Consensus?"). Oreske laments the impediment erected by denialists. As long as they

divert public and political attention from "a full debate on the moral, social, political, ethical, and economic ramifications of possible responses to climate change as well as the ramifications of inaction," no progress is possible in discovering more about the world we have made and about how to best live in it.

As much as Pielke and Oreskes agree on the reality of climate change, neither of them or the scientists such as Henry W. Kendall, Richard A. Muller, or Barry Bickmore—notable because of their well-publicized changes of heart[30] on climate science following

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[30] Kendall, co-founder and chairman of the Union of Concerned Scientists, has for years recognized the ambiguities inherent in all the sciences, including climate science, but in spite of this, Kendall supports U.S. policy action on global warming mediation strategies. Unlike Seitz, Jastrow, and Nierenberg, similarly trained physicists of his generation, Kendall considers scientists at lease somewhat responsible for damage to the Earth from toxic waste and nuclear armaments (Lahsen 215-6). After publicly expressing doubts in 2008 about the existence of global warming because of weaknesses he identified in climate studies, physicist Richard A. Muller at UC Berkeley, conducted his own studies confirming the reality of global warming. Citing first skepticism and subsequent peer reviews of five separate papers from his lab, Muller described his conversion in the *New York Times*, and a number of mass media columnists used him as an example of real scientists who see the light about climate change. Paul Krugman for the *NYT*, Eugene Robinson in the *Washington Post*, and Ian Sample of *The Guardian* of London made much of the conversion. Even Frank Luntz changed his position on climate change legislation because he sees values for the left in protecting the environment, for the right in protecting American national security interests, and for the center in providing for an increase in jobs (Smerconish). According to Eric Pooley, "Luntz wanted to get on the right side of history" (436), but he also was employed by News Corp., Rupert Murdoch's media company, "to explore how to talk about climate change and clean energy to skeptical Americans [because] the company was pursuing a progressive carbon-reduction agenda even as its two most influential American news outlets, Fox News and the *Wall Street Journal*, fanned the denier flames" (436).

An article by Barry Bickmore from the *Salt Lake City News* (April 22, 2013) juxtaposes the comments of Utah Congressman Chris Stewart with those of BYU Associate Professor of Geological Sciences at Barry Bickmore. Bickmore admits that he came to the climate change table relatively late but, after sustained study, realized that the data about global warming and rapidly increased carbon emissions warranted a re-orientation. Bickmore is an active Mormon, an active Republican, and a geochemistry professor at Brigham Young University. Additionally, Bickmore condemns Lord Christopher Monckton in the posting "Lord Monckton's Rap Sheet" in his blog *Climate Asylum*, subtitled *The Blog Formerly Known as Anti-Climate Change Extremism in Utah*.

careful study of evidence—have been able to halt the denialists' arguments, nor have they reduced their spread in digital scenes, such as Mark Morano's *Climate Depot*. In these cases, scientists examined scientific evidence that persuaded them to surrender a long-held orientation and adopt new values and judgments. Who or what is capable of changing the minds of the general public and the legislators who represent them?

Public Incompetence and Trained Incapacity.

Bitzer's 1978 prediction—of "the possible existence of a universal political public which might become self-conscious and articulate" (71)—has to some extent come true in the digital age. Today publics are made rhetorical because they are "carved out less by exigencies in local geographical contexts and more by communications which shape consciousness and call attention to massive problems which cross traditional political boundaries and are essentially universal" (71). Composed of persons in far-flung geographical locations, but "united in interests, aspirations, tradition, and experience" (74), a digital public will likely attend to the urging of a movement leader they perceive to be in tune with their rich heritage of values and truths.

Bickmore's conversion emphasizes the irony of their disagreement. Both are Republican; both from Utah. Bickmore, however, is a *scientist*, as his article notes, whereas Stewart is *not a scientist*. Bickmore urges Stewart, the newly appointed Chair of the House Subcommittee on the Environment, to study the science thoroughly enough to commit to climate change action. Bickmore accuses Stewart of rhetorical shenanigans: "no amount of nitpicking, strawman argumentation, or excuse-making will magically make [the risk of inaction] disappear." At the bottom of the article is the claim, "Climate change is not a partisan issue—it's science," in all caps, in the same orange color as the tags "not a scientist" and "scientist" used to mark Stewart as uninformed and untrustworthy, and Bickmore as a knowledgeable expert whose ethos emerges from his credentials in the field.

The rhetorical nature of the public, whether digital or embodied, is created when local exigencies affecting its survival and well being come to the fore, demanding public attention in the form of debate, negotiation, and solutions. I suggest that contemporary digital publics inhabit scenes whose boundaries expand and contract to include individuals who share values and who have authorized truths through acts of digital communication: liking, sharing, and commenting on Facebook; posting comments to op-ed pieces and blog posts; and signing digital petitions. However, an effective movement leader must frame a global crisis, such as rising global temperatures, in terms sufficiently alarming to move the digital public to actions in the local context that go beyond digital communication.

Bill McKibben may very well ask Bitzer's question, "What authorizes the change that my discourse may effect in the world?" (75). Bitzer's answer is, "[T]he public itself is the proper authorizing ground of certain terms, truths, and values justifying what is said or done in its behalf, *provided that the public is competent*" (76, my italics). Bitzer's conclusion is that "the knowledge which would characterize a universal public must be organized and created by those capable of seeing and voicing the conditions and interests, the values and truths of a public capable of overcoming hazards to be encountered" (92).

Calling a universal public into existence by reminding it of and giving voice to the discovery of the truths, values, principles, and attitudes that will sustain it: this is the role of the social movement leader. Bitzer says, "Public spokesmen create discourse that expresses and generates public knowledge; they debate, judge, celebrate, and make appeal to the community of feeling and ideas. Principles, values, and truths thought to

be already accredited may be discredited and either abandoned or revised in the course of struggle; and a public, in attempting to modify exigencies, may posit new values and truths which win approval because they are perceived to be manifestly right or fit" (90). The social movement leader's responsibility in this light is to demonstrate the rightness and fitness of the value of lower carbon emissions.

Bitzer condemns as failures those representatives of science, for example, who stand in for and purport to speak as representatives of their cohort in science if they present falsehoods or act out of selfish motives (73). In other words, the scientist's immediate public is her cohort of scientists, to which she belongs, to whom she speaks, and for whom she speaks to other publics. Therefore, to represent her views and theirs with integrity means that she is authorized by virtue of shared knowledge to speak for the group. However, if a person declares that she represents the public, but in fact speaks out of her own motives to serve her own interests, then her declarations are, according to Bitzer, counterfeit.

The implication for climate change deniers is that covering up their motives deliberately allows them to counterfeit authorization and create a false public, the phenomenon I have called the echo chamber: A false claim about global warming is uttered by Seitz to the *Washington Post*; Marc Morano pulls it into his *Climate Depot* website, from where it generates considerable comment from the digital audience, and then, because of the expanding scenes of commentary available to digital producers and consumers, Fox News then propels it forward in the news cycle. After that, Rush Limbaugh may give it ninety seconds and Glen Beck, five minutes. Then, according to Bitzer's definition of public knowledge, the whole set of comments and echoes creates

the new public knowledge. But if this is an accurate description of the series, can we still take as true Bitzer's affirmation of faith in public knowledge?

> [P]eople routinely distinguish between the true and the false, between claims indisputable and disputable—between knowledge and opinion, between correct and incorrect methods of inquiry and confirmation, and among kinds of knowledge and degrees of certainty. . . . It is also an observable fact that people frequently select knowledge over opinion, deliberate successfully about matters of truth and value, and assert to be true and valuable what actually is true and valuable. . . . The distinction between knowledge and opinion, or between truth and mere belief is, therefore, fundamental and real. (72)

The question about public competence to engage in the climate change debate, therefore, depends upon the public's ability to distinguish between the true and the false.

I argue that scientists and the media spokesmen in the denialists' coalition deliberately argue to the ill-informed public because they know that actual facts generated by climate scientists will not warrant the denialists' claims and conclusions; that only public ignorance, not public knowledge, will authorize their claims. If climate change deniers know that they are consciously making claims based upon falsehoods, then this description by Bitzer needs a bit of glossing: "Rhetors make claims, they often believe the claims to be true, and they seek to establish claims upon grounds *thought* to be true and unassailable" (72, my italics). At least in declarations to the public, the denialists must treat as *true and unassailable* the grounds for the claim that the global

warming is not anthropogenic in origin. Excellent rhetoric depends, as Bitzer argues, upon "connection with knowledge," that is, upon "collective human experience" (69), shared "definitions and conceptual systems" and truths expressed in various disciplines, including science (87).

The self-appointed representatives of Total Science, Seitz, Nierenberg, Jastrow and Singer and their media spokesmen Frank Luntz and Marc Morano, rely upon a public knowledge that is after all unformed, or ill-formed, and partial. Just as important, they are relying on the human tendency to resist change. They don't have to dissuade people that climate change exists. They just have to prevent their believing that it does exist; whereas Bill McKibben, *350.org*, and climate scientists are asking the public to ascribe to a piety that requires a change of values and behavior, a task with a much higher standard of persuasion. Seitz, Nierenberg, Jastrow and Singer are counting upon the public to accept their assertions about global warming for at least two reasons. The first is that these four scientists and their media representatives do not deviate from a single message, nor do they attempt to present a nuanced and ambiguous set of climate science facts. The more significant factor, I argue, is that the public conflates physics, chemistry, oceanography, meteorology, and other climate science into Total Science, represented by these four important and successful physicists whose credentials, while not earned in climate science, are nonetheless impressive to a public that does not look too closely. This assumption disenfranchises the public and dismisses public knowledge acquired elsewhere in legitimate ways, such as human experience communicated over generations of exposure to science education in the classroom, through youth organizations such as Girl or Boy Scouts, to some extent through mass media.

The public's surrender of agency occurs in two ways. First, the denialists are sowing doubt in their audience by encouraging them to trust a vocal minority who choose the terms and articulate the case against anthropogenic causes of global warming. Rather than examine climate change science firsthand, the public relies on the denialists, not because they deny climate change—at least not at first—but because the denialists have wrapped their message of doubt into a whole set of values this public already subscribes to: economic security, national pride, and individual freedom. Moreover, the public may collude in this surrender by its inept or inadequate pursuit of scientific knowledge. As long as a public holds incomplete or inaccurate information about climate change science, its lack of knowledge undermines its agency and renders it incompetent both to participate in the debate and to cooperate with *credible* experts in formulating solutions to the carbon emissions dilemma.[31]

The public's incompetence—or trained incapacity—persists until it receives and authorizes new definitions and concepts with which to engage in consideration of propositions in, for example, the climate change debate. The climate change deniers' manufactured body of knowledge must appear valid in order for a public to accept it, to allow its generative function within the public, and in turn to authorize both the knowledge and policy decisions based on it. The public's willingness to accept the manufactured knowledge as a basis for decisions is evidence of its incompetence, or at least of its insecurity with regard to decisions based on science. Their willingness is aided by their self-doubt regarding science and by the media's perpetuation of the false

[31] In "Challenging Knowledge," Oreskes and Conway attribute this incompetence to Seitz, Jastrow, and Nierenberg's conscious production of ignorance in the service of their commitment to unregulated capitalism (80).

symmetry of purportedly two equal sides to the climate change debate. In this case science illiteracy has global implications.

Here is a particularly perverse observation when applied to the denialists as representatives of a public: Bitzer argues that "competent representation requires knowing what the public knows" (77). In the case of the denialists, they knowingly played on the scientific illiteracy of the public, substituting a spurious, secondhand version of climate science for the credible shared knowledge of the 97% of climate scientists whose definitions and concepts were made trustworthy by their own research findings. In other words, the denialists usurped the role of representative and spoke with authorization from only a small cohort of likeminded denialists. How then are we to read Bitzer on this point: "Public speakers do actually seek to locate authoritative grounds for discourse, and we should believe that the best of them do so for the purpose of assuring that their discourse is competent and correct, and not simply for the purpose of making their discourse persuasive" (76)? One interpretation is that the denialists did authorize their own discourse, but, in an act of hubristic tautology, acknowledged by their own reputations—as physicists, though, not climatologists. But they had to pretend aspirations to competence and correctness, since their motive was actually to maximize the persuasiveness of their discourse: To win the public's confidence; to appear increasingly like the public's voice; as if the public both authorized their discourse and chose them as their representatives.

In the case of climate science, the public is not competent to authorize the "terms, truths, and values" spoken in their behalf by the denialist community. Instead, the public is told pre-emptively what to warrant. The process of authorization in this

case is backwards: The speaker tells the public what knowledge it should take as true; the public then echoes that knowledge in a pretense of authorization, or authorization in reverse. The climate change deniers thus earn the attributes Bitzer ascribes to messages that lack authorization: "arbitrary, irrational, or perverse" (76). This is why Bitzer matters to social movement rhetoric.

The competent social movement leader is authorized to speak for a public if it confers membership in it by virtue of knowledge shared by both the public and the leader, as well as by the group's recognition of her empathy for their shared values and experience. Indeed, a public that is competent in matters of climate change is hard to come by. Perhaps this difficulty is one reason Bill McKibben continues to argue that the public must pay attention to the science of climate change, in the hope that a public made competent by education in science will choose to reduce its own carbon emissions and press for policy decisions to reinforce their private choices.

Bill McKibben: My Way or the Highway

As the founder of *350.org* and its most public spokesman, Bill McKibben claims a belief in the power of the individual and of small local groups to reduce their own carbon footprints, but more important, to lobby their legislators to pass laws to promote reduced carbon emissions. More recently, McKibben has marked off even more rigid circumferences for the environmentally pious by labeling the entire fossil fuel industry as the enemy. To reduce fossil fuel to an impious substance, mined, developed and sold by corrupt profiteers is to enter into a kind of perfectionist state that Kenneth Burke described as rotten. Burke's distrust of motivational reductions raises a thorny question for social movement leaders, such as Bill McKibben: Given the

complexity of climate chaos, how can McKibben animate new adherents to action without reducing his message to slogans or three-minute YouTube clips? He redefines the fossil fuel moguls, not environmentalists, as the real radicals. They are radical because they are willing to alter the atmosphere of the entire planet by spewing carbon into the atmosphere thereby jeopardizing every species on Earth. The moral right, on the other hand, is defended by creative, spirited, passionate environmentalists—the little people, in other words—who must do courageous battle against the oil behemoth to save the planet. McKibben reduces the problem of global warming to an epic battle between the corrupt barons of carbon and the humble, passionate—*pious*—environmental activists. Are the rallying cries of social movement leaders untrustworthy reductions or rhetorical strategies essential to the success of a social movement?

If the movement leader aspires to solve a complex problem such as global warming, then reducing the problem to simple slogans will likely fail. Negotiations toward solutions require nuance and deliberation, not fiery rhetoric and labels such as *right* and *radical*. However, bringing factions to a negotiating table may require a critical mass of people, either pushed or led by the movement leader, to pressure their representatives to compromise. First reductions; then movement; then, in the best case, compromise for solutions.

Conclusion.

In this chapter, I have analyzed the diachronic rhetorical situation of the global warming debate to reveal how the phenomenon of trained incapacity works to maintain the status quo. The public is trained to continue attitudes and behaviors determined by

their cultural group's values and judgments and so is loathe to violate these ties, thereby isolating members of the group. The public's resistance to change is exacerbated by their inadequate understanding of basic science and the science of climate change. In spite of Lloyd Bitzer's declaration of faith in a public's ability to filter out nonsense and acquire trustworthy knowledge, a variety of polls show otherwise.

Exacerbating the difficulties faced by a public inadequately trained to understand the complex chemistry and physics of carbon emissions, is the ambiguity that is an essential element in scientific discovery. Two other factors contribute to the public's inability to apprehend climate science: The volume of information published by the UN's IPCC, a clearinghouse for climate change science, intimidates most nonscientists. This intimidation invites the public to rely upon journalists to translate for them the most difficult of the concepts, a task few journalists are inclined or equipped to do. In addition, the journalistic standard of balancing sources for a story has created in the public's mind a false symmetry, thus creating a fertile ground for the denialists' campaign to undermine credible climate change science.

Not only has the denialist community taken advantage of public incompetence in science to substitute a distorted view of climate change science for credible scientific research into the topic; but they have also played upon many American's fears of entanglement in international treaties, such as the UN's Kyoto Protocol. As Orekes, Conway, and others have argued, a particularly powerful group of physicists parlayed their influence acquired during World War II and the Cold War into denying climate change science.

A central irony of this chapter is that, as digital technologies made international communication instantaneous, those same technologies allowed minority voices to secure the spotlight and monopolize the debate on climate change by casting doubt on the science that could not guarantee the truth of its claims at a level that would convince the nonscientist public. The denialist community took advantage of the doubts inherent in scientific discovery to undermine the ethos of the majority of climate scientists in the world. Moreover, denialists rolled doubt about climate change into a larger set of beliefs. Thus, the conflicted terms of the global warming debate confused the public and policy makers, deflected attention from the realities of climate change, and so far have thwarted action that would effectively reduce carbon emissions.

I have argued in this chapter that these physicists' participation in denial of climate change manifests their incapacity to overcome their training in an era when physics reined as queen of the sciences. However, upon the encroaching problems discovered by environmental sciences—what they considered softer, less reliable sciences—these physicists reacted by denying the science. Furthermore, they appear motivated by an uncompromising dedication to free-market capitalism, to the extent that any federal regulations of the fossil fuel industry, for example, or any international treaties to regulate carbon emissions were taken as moves down the slippery slope toward communism.

However, if the climate change denialists have evinced trained incapacity to the extent that they are bound by a Cold War orientation, *350.org* founder Bill McKibben's style of leadership demonstrates a commensurate reduction. Whereas credible climate science may show that McKibben's scientific orientation is not faulty, his reduction of

climate change to a battle between fossil fuel and the environment is evidence of a kind of trained incapacity. Although necessary for the founding and enlarging of a social movement, McKibben's insistence on regarding the fossil fuel industry as the enemy exemplifies Kenneth Burke's caution about the rottenness of perfection. A perfectly simple message, whether it be to reduce carbon emissions or, as the denialists argue, "Drill, Baby, Drill," cannot promote negotiations to solve the problem of carbon emissions.

Conclusion: Responsibilities of a Social Movement Leader: Piety or Rigidity

How I First Became Interested in This Project

What I have accomplished in my dissertation, an act of rhetorical criticism, is to create a new way of thinking about how the practice of social movement rhetoric gives substance and voice to three constituencies: a social movement's leader, in this case, Bill McKibben as an individual advocate of reducing carbon emissions; potential adherents to McKibben's social movement *350.org*; and to other groups and individuals opposing limitations on fossil fuels. I have shown how the leader of a social movement assists in "the invention of discourse," as Bitzer says, "sufficient to the needs of the age and its problems" (91), by employing terminology that reflects the values of a burgeoning social movement, while deflecting attention from values that might demotivate potential adherents.

I began this study for two reasons. The first is that I have long admired the writing of Bill McKibben, starting with his 1989 work *The End of Nature* and continuing with his founding of *350.org*. The second is that, as the evidence for global warming began to accumulate, I was astonished that any adult, especially those with university training, and most especially legislators with the power to enact policy to restrict carbon emissions, would doubt the science of global warming. But there they are in the halls of Congress, balking action on climate change legislation.

The Gap I Was Trying to Fill

I situated this project in rhetorical criticism because scholars of social movement rhetoric had not adequately accounted for the competing rhetorical responsibilities of a movement leader. Although Stewart, Smith, and Denton address the public perception of Martin Luther King, Jr. as the only individual shouldering the rhetorical responsibilities of the civil rights movement, no scholar has worked specifically with a similar perception in the environmental movement. In the case of Bill McKibben, the most widely recognized face and voice for the contemporary environmental movement, these responsibilities included narrowly defining a new environmental ethic by a number of particles of carbon in the atmosphere—350—an esoteric and rather confusing term. At the same time, McKibben bore the responsibility of expanding the reach of the movement *350.org* from an organization launched in the United States to international audiences by means of digital communication tools. While other scholars have investigated the tone of environmental rhetoric (Killingsworth and Palmer), or specific cases of policy debate (Schwarze), or the historical context of a theorist's view of the environment (Siegel), no work in movement rhetoric has addressed the power of

vocabulary about the environment to create space for a movement, while simultaneously—albeit inadvertently—creating territory for the movement's opposition. Moreover, Simons addressed the responsibility of a movement leader to "resolve or reduce rhetorical problems" (2-3), responsibilities magnified in the era of digital activism, but little work since Simons has taken up the subject of the rhetorical responsibilities of a movement leader in digital space.

My study also breaks new ground beyond that in Stewart, Smith, and Denton. They describe one step toward defining the identity of a social movement as "animat[ing] an unknown or dormant identity to attract prized recruits and to repel the unwanted" (202), and certainly Burke's strategy of division, as they note, is at work in many movements. Whereas Stewart, Smith, and Denton do acknowledge to some extent the role of language to "[idealize] an identity into which recruits can step and [define] the common characteristics of organizational members" (179), my study moves beyond their description in two ways. The first is that McKibben eschews attracting high profile adherents, most notably Vice President Al Gore, choosing instead to characterize himself as a reluctant movement leader, a scholar, and a journalist whose demeanor is that of a serious advocate for the environmentally pious. As I argued in chapters 3 and 4, McKibben appears to relish the role of gadfly and wonky environmental journalist, rather than the polished appearance of a camera-friendly celebrity with a video and book on a world tour. Creating a grassroots movement, as McKibben argues, requires a large numbers of adherents, rather than carefully groomed celebrity endorsements.

The second distinction is that, because Stewart, Smith, and Denton stop short of explaining how the selection of terms works to solicit members and to create identity,

my study moves forward to describe the process of creating new terminological territory for new constituents to inhabit. Rather than giving life to a latent body of environmental advocates, McKibben *creates* a membership whole-cloth by selecting a newly discovered scientific term—350—with which to characterize a new piety: The environmentally pious believe in the science of limiting carbon emissions to 350 ppm; they believe that national legislation to limit carbon emissions is worth a sacrifice in higher fuel prices; and they commit to reducing their own carbon footprint. McKibben's message is this: "If you believe these things, you are a member of the pious." In other words, the potential adherents are not necessarily identified with these beliefs before membership; they may recognize a generalized threat to the planet from increased greenhouse gases, but they do not themselves identify as members of a movement, nor do they necessarily seek a movement to join. In terms of how the members of *350.org* relate to nonmembers, McKibben asks that they abandon the carbon economy for a way of life sustained by renewable energy sources. Separation from the impious, as McKibben argues, means selecting a new vocabulary of belief: The physics and chemistry of global warming provide the lexicon for *350.org*; using the new terms creates new territory bounded not by oil derricks and coal mines, but wind turbines and solar panels. Stewart, Smith, and Denton describe "complete separation from their previous society and other people" as one option for constituting a new People (178). The distinction I am making is that McKibben is not recruiting adherents by inviting them to an event (177), as much as he is creating the belief system that potential adherents may only vaguely intuit as something they desire. McKibben's responsibility

is to convince them that their very survival depends upon their acquiring the new vocabulary that codes their beliefs.

How I First Conceived of This Project

I conceived of this project as an analysis of *350.org*'s efforts to influence carbon emissions legislation in the United States. Although case study is a commonly used method in environmental rhetoric, I chose not to use it because the case I would have constructed—"*350.org*'s International Day of Climate Change"—did not account for two equally significant features: the diachronic nature of the climate change debate and the evolution of the terms used by parties to the debate. Because both of these aspects require investigation of change over time, I chose the genre of rhetorical history for my project, as described by Steven Mailloux. In addition, a footnote to Kenneth Burke's 1937 *Attitudes Toward History* urging ecological balance suggested that Burke's theories of human behavior as drama would enable me to examine the ongoing drama of the climate change debate. Also, Burke's theories of effective persuasion as "boring from within" and language to induce agreement in others (*P & C* 81) provided especially sensitive tools for investigating the power of vocabulary to thwart or promote social action.

My Research Questions

My general research question was, Through what means do leaders of the environmental movement seek to influence audiences to change their beliefs and behaviors? Three specific research questions evolved from this general question: First, What terms employed by what agents dominated the scenes of environmental debate before the United Nations Framework on Climate Change Convention (UNFCCC) in

December 2009? I chose this particular rhetorical scene because of the momentum generated by environmentalists and by the concurrent potential for US legislation to limit carbon emissions. The mass media were carrying the story of the UNFCCC and the story of the United States consideration of taxing carbon. The publication of these simultaneous stories created a rhetorical scene ripe for analysis. Second, How did Bill McKibben, founder of *350.org*, use certain terms to carve out the ideological territory for *350.org*'s participants in the International Day of Climate Action? Finally, How did the community of climate change deniers triumph in the diachronic rhetorical situation where they and Bill McKibben enlarged the scope of their ideological territories, but grew increasingly rigid in the process?

My Approach to Each Question

My methodology gives insight into why *350.org*'s message worked to increase its presence online, as measured by viewers of its website, but, nonetheless, McKibben labeled the 2009 Copenhagen summit a dismal failure because the United States and other major carbon emitters did not agree on new international measures to limit carbon emissions. Nor has *350.org* succeeded in diminishing the denialists' media presence. On the contrary, in important ways, my analysis reveals how the debate about climate change occupies expanding rhetorical space, while at the same time, public understanding of and belief in the science of climate change has eroded. The erosion, as I discovered, appears to be a by-product of several rhetorical phenomena: The denialists' opportunistic use of public incompetence about basic science in order to

increase their own ethos; the denialists' successful conflation of national pride, economic stability, and individual freedom to reinforce a conservative political agenda opposing environmental regulation; and Bill McKibben's increasingly narrow rhetorical circumference.

The gap, as described by David Tietge, in the public's patchwork of understanding of both basic and climate-change science, is filled by advocacy messages crafted by social movement leaders, such as Bill McKibben and his opponents, operating in this era through cyberspace. Tietge suggests that public confusion or ignorance about the scientific facts of climate change opens a productive rhetorical space that shares characteristics with all rhetorical spaces, as described by Kenneth Burke: "You persuade a man only insofar as you can talk his language by speech, gesture, tonality, order, image, attitude, idea, *identifying* your ways with his [and] the identifying of himself with his audience will be more effective if it is genuine" (*A Rhetoric of Motives* 55). My analysis suggests that McKibben identified himself as a reluctant movement leader, a purveyor of a wonky data point (350 ppm), and the opponent of fossil fuels, while at the same time becoming the most recognizable face of the contemporary environmental movement. However, the number of potential adherents who identify with him has not increased to the point of creating legislative momentum for policies to limit carbon emissions, a disappointment following the United Nations summit in Copenhagen in December 2009. In spite of the momentum created in the mass media before the United Nations summit, including reporters' observations about the work of *350.org*, as I reported in chapter three, *350.org* did not create so unified and powerful a message as to convince US legislators or the US representatives to the UN summit that

the political will existed to press for legislation to limit carbon emissions. The environmentalists at the summit were not unified; they presented so many disparate agendas that they were dismissed as quarrelsome factions by the representatives.

In chapter two, "Choosing Terminology in the Global Warming Drama," I argued that strategic choices of vocabulary defined environmental problems as crises or minimized their importance in order to thwart regulatory action by Congress and the White House. In the decades before the UNFCCC summit in Copenhagen in 2009, proponents of climate change legislation chose terminology that expanded their influence, while inadvertently providing tools for opponents to undermine their arguments. President Lyndon Johnson's term *pollution* established a common ground on which bipartisan Congressional support could work for environmental restoration, but Gaylord Nelson's term *unbridled capitalism* alarmed free market advocates who claimed that environmental regulations would cause serious harm to the economy. In my construction of a rhetorical history of the arguments before the United Nations Framework Convention on Climate Change in Copenhagen in December 2009, I discovered attempts by the constituents to promote or thwart climate change legislation. My approach was to analyze the rhetorical moves employed by individuals and groups in the four decades of attempts to improve and protect the environment. Because it provides an especially sensitive heuristic for explaining the motivating and demotivating power of language, I applied Kenneth Burke's theory to terminology prominent in scenes of the environmental debate from 1970 to 2009. In particular, I examined terms that created rhetorical scenes by circumscribing or defining the territory for debate. That is, I analyzed the language that constructs the rhetorical scene

and motivates rhetors to act and react consistently with their vocabulary. In providing the rhetorical context for *350.org*'s advocacy of legislation to reduce carbon emissions, I conclude that environmental debate in the three decades leading to the UNFCCC generated insufficient momentum to compel action to reduce carbon emissions.

In chapter three, "Bill McKibben and *350.org*: Circumferences and Reductions in the Rhetoric of a Social Movement," I concluded that contracting and expanding terminological circumferences first establish and then limit the scope of *350.org*'s influence. I arrived at these conclusions by tracing the evolution of Bill McKibben from journalist to social movement leader by examining his use of the terms *science*—and especially *physics* and *chemistry*—as synecdotic of the whole body of unequivocal evidence for climate change. I discovered, however, that McKibben himself equivocated in using science to represent the limits of human abuse of the atmosphere, while at the same time, but in different texts, employed science as an all-purpose bogey-man ready to leap out of laboratories to capture unsuspecting mortals in experiments to make them both more than and less than human.

This muddling of his message, as Burke calls it, added to three other factors that led me now to conclude that McKibben did not successfully reconcile the competing rhetorical roles called for in a movement leader. The role McKibben filled most successfully was that of front man and spokesman for *350.org*. His name, face, and single-minded message placed him at the front of the movement. At the same time, however, in other roles, such as generally reducing rhetorical problems (Simons 2-3), McKibben did less well. While McKibben succeeded in articulating a new order—regeneration of an economy in a post-carbon world—he exaggerated the movement's

influence and could not deliver on the promise to create a grassroots movement persuasive to US political leaders. McKibben oversimplified the problem of global warming and addressed the opposition as an enemy, rather than entering into conversation with, for example, leaders in the fossil fuel industry, to create solutions to global problems in carbon consumption, but on a human scale. His manner was earnest, but he so demonized the opponent that little opportunity for real conversation has occurred. In fact, he has not articulated a desire to occupy the same rhetorical scene as fossil fuel producers, as if the territories they both inhabit were actually on two different planets, instead of on one Earth.

The other factors are these: McKibben argued in *Enough* for a graceful decline in the standard of living for Americans. The decline would come because of choices Americans would make to drive less, live in smaller dwellings, and grow more of their own food rather than support industrial agriculture. The threat to the fossil fuel industry alone is enough to doom McKibben to the role of gadfly, rather than leader of a movement that would actually promote change for the better, such as lower carbon emissions. But to even utter a hint of American decline is unpatriotic apostasy. The other two factors that undermined McKibben's success as a movement leader are closely related: One was his circumscribing the pious territory so narrowly as to exclude most of his countrymen and women. If adherents to *350.org* shared McKibben's enmity toward the entire fossil fuel industry, then there is no room for compromise on how and when fossil fuels are acceptable and necessary to contemporary life. And last, as a result of the narrow circumference of the pious territory, there will not be a critical mass of movement participants to convince the impious to join.

Burke's recommendation in "Boring from Within" for actually changing others' views in a given rhetorical situation is to pour a drink, light a cigar, and actually have a kneecap-to-kneecap conversation with one's opponent, finding common terms and thus shared values with the other. In essence, boring from within means that McKibben would fulfill his rhetorical responsibility as a movement leader by resolving the rhetorical problem of inimical language: Neither he nor the fossil fuel industry leaders and climate change deniers are demons; both love America and seek to help her thrive in a future that requires less dependence on fossil fuels, but not complete abandonment of them. In chapter three, my examination of the limitations of McKibben's rhetorical efforts as a movement leader reveals his ability to reduce and expand the terminological circumferences, first solidifying his message, then enlarging *350.org*'s influence, but only to a limited extent. He did not expand *350.org*'s influence to the extent that he declared as inevitable on the morning of the International Day of Climate Action; that is, legislators and international representatives to the UN summit cannot help but be convinced by the scope of *350.org*'s action to agree to carbon emission reductions. They were not persuaded.

In chapter four, "Overcoming Trained Incapacity," I created a new way of seeing the connection between rottenness of perfection, trained incapacity, and piety by demonstrating how individuals acquire a vocabulary to express their worldview and subsequently rehearse and reiterate that worldview into a perfectly rigid set of beliefs capable of blinding the individual to other views. In a classroom, we teach students to craft arguments to persuade skeptical audiences, which means selecting evidence in terminology that will elicit trust and engage the parties to the discussion. In this study, I

have discovered that potential adherents of *350.org* were already primed to accept the principle of environmental protection, but the denialists spoke to an audience whose belief system valued first their own economic opportunities in unregulated capitalism and second national independence unfettered by UN treaties. The innovation of my argument lies in the connections I have constructed among these Burkean terms. I argue that both Bill McKibben and the denialist community attained a rottenness of perfection in their rhetorical strategies, rhetorics so effective that they began to reverse the progress they had accomplished in consolidating their own membership, but in failing to speak to an audience that did not already share their pieties. Although the two positions are not symmetrical, the public—because of their relative incompetence to sort through scientific information—treated the two "sides" as if they were founded upon equally credible facts. Certainly, reliance upon scientific facts is one way people create belief systems. Human communities also create beliefs through shared life experience and revelation of a religious nature. These beliefs envelope members, who then, if they move toward the outside of these communities suffer isolation until they enter into a new community with its own shared language and beliefs. The false symmetry of the climate change debate, I conclude, is perpetuated by media treatment of climate change, a treatment that falls short of parsing the complex language of climate change science, with the result that individuals who are looking toward a change in their pieties might construe the two presentations of the climate change debate as commensurate. Ultimately, creating a perfectly simple message to elicit international support for a social movement requires that the movement leader reduce a complex issue to slogans for banners. To be pious, to encourage piety in others,

demands a rhetoric so rigid that adherents grow incapable of falling back into impiety. Indeed, it would be a valuable rhetorical strategy to be able to fall back into impiety because of the comfort available in familiar, relaxed standards of belief and behavior. But the steadfastness of a unitary message balks action to solve the problem of climate change. Such steadfastness often veers into rigidity. I conclude, therefore, that if McKibben's movement rhetoric did not actually thwart action toward legislation for carbon emissions, its rigidity did nothing to promote negotiations toward that end.

Discoveries that Changed the Course of My Project

Initially, I considered the digital photograph album created by *350.org* members for the International Day of Climate Action to be the focus of my study. I thought I would develop a chapter of background on the UNFCCC, a chapter on Bill McKibben's groundwork as a journalist and movement leader, and then a chapter on the rhetoric of images captured and uploaded for the IDCA, following the work of Kevin DeLuca in *Image Politics*. However, as I worked through both the theoretical framework and the evolution of terms, I discovered that my central claims went beyond digital activism, as represented in the online collection of photographs from October 24, 2009. The reasons for the change in my emphasis lay in my discoveries of how both environmentalists and their opponents used a variety of rhetorical strategies to promote their positions. For example, until President Ronald Reagan took office in 1981, the term *environmentalism* invited bi-partisan work in Congress and through the Executive Branch in behalf of the nation's resources. However, President Reagan—sometimes tacitly, sometimes overtly—positioned environmental protection as the enemy of a thriving economy and a threat to national sovereignty. During President George W. Bush's administration, the

Republican Party's desire to brand itself as the pragmatic and patriotic American party required remediation from the widely held view of the GOP as anti-environmental so that voters would not see the party as espousing free market capitalism at the expense of the environment. In view of national and international support for a greener world, a Republican advisor coached party members in the new language of *environmentalism* as essential to nationalism and economic growth.

As I followed the increasingly anti-science bias of the Republican Party, I discovered the successful campaign by a community of climate change deniers to undermine credible climate change science and take advantage of the American public's general incapacity to distinguish between credible and spurious representations of science. Thus, I shifted the emphasis of the last third of my project to the denialist community's ability to package climate change denial with a constellation of other beliefs and fears, such as a staunch belief in America's right to self determination in the face of a perceived UN threat to undermine national sovereignty; or fear of the economic costs of reducing carbon emissions. During the process, I discovered in both the denialists' and Bill McKibben's rhetoric an increasing rigidity—a tendency Burke labeled *trained incapacity*—that thwarts productive negotiations to ameliorate the damage from climate change and forestall an increase in carbon emissions, while sustaining the United States's economic future.

Unfortunately for the social movement leader and for policy makers, uncertainty is necessary to science in order to establish a border for the next generation of discoveries. Within the boundary, science is known; beyond the boundary of the known lies new knowledge. But at the boundary, the very margin of uncertainty, is a line, in a

sense vibrating with potential if you are a scientist ready to move forward. But if you are a political leader working on public policy, or the leader of a social movement in need of an uncomplicated, singular, stable rallying cry, the liminal space of uncertainty thrusts agents into a scene of paralyzing vulnerability. The rhetorical responsibility of the social movement leader, then, is to convince potential adherents that vulnerability is opportunity. In the best case, a social movement leader can convince potential adherents, as well as opponents, that opportunities and benefits derived from sustainable development can be universally shared, a claim Maurice Strong argued in 1992 to the participants in the UN Climate Change Summit in Rio de Janeiro ("Opening").

Challenges I Encountered

Since the first time I wrote about the IDCA and *350.org*'s digital photograph album in 2009, I encountered problems similar to those described by Drew Loewe in his dissertation, "Rewiring Kenneth Burke for the 21st Century: Hizb Ut-Tahrir's Social Movement Rhetoric and Online quest for the Caliphate." Loewe argued that the persuasive possibilities that the Web offers—not available with paper and pen or cardboard placards and shoe leather—require the development of robust research methods specific to the digital world (Loewe 5). Before him, Barbara Warnick described the difficulties of studying websites, for example, because of their changeable nature. Archiving an unstable artifact requires new tools and new methods of capture.

To solve the problem of a disappearing website version of two images I needed for chapter 3, I used screen-capture in a MacBook Pro and the internet archive tool

Wayback Machine, an archive tool that itself has evolved in three years to include almost 400 billion documents. The screen-capture feature allowed me to save two photographs from *350.org*'s International Day of Climate Change digital photo album, a strategy made necessary by the organization's decision to limit the display of the original 22,000 photographs, later culled to 345 in 2011, and now represented in a two-minute, nine-second YouTube video as an artifact of "Past Days of Action." In this evolution, the digital archive has become a new text in a new medium. Because the voices and movements of the participants on October 24, 2009 were not available until recently, I was limited to the collection of still images, from which I selected two as representative of the large and small groups of people involved in the day of action.

Limits I Imposed and Avenues for Future Research

For chapter two, I limited my analysis to three overlapping scenes in which rhetorical acts promoted or undermined environmental protection. The first two scenes were centered in Washington, DC where proclamations by Presidents Johnson and Nixon and Senator Gaylord Nelson reflected and motivated action to mitigate environmental pollution; countering environmental protection, three decades later, the Republican Party, coached by linguistic adviser Frank Luntz, wanted to appear green, while promoting free market capitalism above all other values. Concurrent to these American rhetorical scenes, I examined the ongoing attempts by the United Nations to protect vulnerable populations from the worst effects of pollutants, including carbon emissions. Because reports by the UN's Intergovernmental Panel on Climate Change and other UN documents offer so much text for analysis, I found it necessary to limit my

analyses to selected passages from Maurice Strong's speech to the 1972 UN Stockholm Conference, the first on climate change, and the Conference's Constitution. I chose Strong because he was an early proponent of climate change mitigation at about the same time as the statement coming from Washington, DC. This limited sampling of Strong's work opens rich possibilities for me and other scholars, especially in constructing a rhetorical history of the UN's repeated, but anemic work in environmental protection. Last, primarily because of the limits of time and space, I chose not to include a close reading of documents from President Reagan's Secretary of the Interior James Watts, infamous for his work to dismantle the Environmental Protection Agency. Instead, I presented brief summaries of Watts's and President Reagan's efforts to undermine the work of the Environmental Protection Agency. Documents from the Reagan-Watts era offer rich material for a future study of Watts's ability to embody the office of protecting the environment for its own sake, while at the same time, making arguments for the nation's land, air, and water to be available as a source of income for miners, loggers, and ranchers.

In order to trace the evolution of the terminological constraints Bill McKibben placed on his participation in the climate change debate, I imposed a limit on the kinds of documents I considered for analysis for chapter three. I excluded blog posts and twitter feeds composed by Bill McKibben because their frequency added an unmanageable volume to the texts I had already identified as representative of his rhetorical identity. Instead I chose the speech he delivered on the morning of October 24, 2009, selected columns for *Orion Magazine* and the *New Republic*, as well as passages from his books, beginning with *The End of Nature*. These limits open a

possibility for continued study of Bill McKibben's presence in Twitter feeds, as well as in other speeches and campaigns currently available on YouTube. (One of these, a ThoughtBubble with McKibben's voiceover condemning the entire fossil fuel industry, is the subject of my paper accepted for the Kenneth Burke Society Conference in July 2014).

Finally, in chapter four, the limits of my analysis were primarily theoretical. I worked with Burke's concept of trained incapacity to demonstrate that both Bill McKibben and the denialist community constructed rigid positions by selecting terms to define their rhetorical positions. Their incapacity to bore from within, as Burke puts it, rendered them incapable of sharing terminology, thus incapable of moving together in a courtship of problem-solving. This chapter took the step of identifying and analyzing examples of trained incapacity; a future study might take the next step of analyzing what a successful courtship does look like. I briefly addressed successes in the examples of urban planners and industrial designers in Virginia and Pennsylvania. A productive future study might employ courtship as pragmatism in solving environmental problems.

Implications of My Project for Social Movement Rhetoric, Environmental Rhetoric, Burke Scholarship, and Science Literacy

My study has implications for social movement rhetoric in general and for environmental rhetoric, more specifically; for Burke scholarship; and for science literacy. My work is important to the field of social movement rhetoric in two ways. The first is in my examination of the rhetorical responsibilities of the movement leader, work first described by Simons in 1970. By applying Burke's theory of terminological

screens in the constructing of movement identity, I extended Simons's description of the competing rhetorical responsibilities faced by the leader. My dissertation opens up a range of approaches for the investigation of social movement rhetoric, most importantly how groups and individuals accept an orientation of their cultural group until a crisis event or other episode prompts an interrogation of the orientation and provides an opening for movement rhetoric to offer an alternative. I have discovered that knowledge alone lacks the persuasive power that McKibben assumes it has or wishes it had. The social movement leader's role, then, is to persuade the audience that a crisis looms and is sufficiently threatening to motivate the audience to abandon its orientation, a move that will be seen as impious by the established group it is leaving. To accept a new piety on the way toward a new salvific orientation requires that the adherents of a movement adopt new symbols of authority, including new terminology with which to articulate their new orientation. Second, I chose to construct a rhetorical history of a movement, a genre that called for me to work in a diachronic rhetorical situation. Both the genre and the situation are unique contributions to social movement rhetoric.

I am contributing to environmental rhetoric specifically by conducting an analysis of a little known advocacy group with a confusing name, *350.org*. I selected this group in part because of having followed the work of its founder Bill McKibben, beginning with *The End of Nature*, the first work to bring global warming into the public conversation. I was also intrigued by the name of the group, taken from NASA scientist James Hansen's assertion that 350 parts per million of carbon in the atmosphere is the limit of atmospheric tolerance before the planet begins to warm so rapidly as to cause

catastrophic changes in human civilization. During the period of my research and writing, I have encountered few people, even those acquainted with McKibben's reputation, who know about *350.org*; more often, people confuse the name with the much more common figure *360*, as in 360 degrees in a circle. As I argued in chapter three, because the name and identity of this group are inherently digital, the group's rhetorical equipment appeals to a digital public but does so in order to make changes in the physical world. In addition, the movement leader Bill McKibben explicitly called on digital affordances to enlarge the influence of the group. But I concluded that the move to expand in number and influence is countered by the contraction of his message through a rigid employment of terms to define the pious and the impious. The first clue that Bill McKibben's rhetoric might not rise to the level of fulfilling the responsibilities facing a movement leader occurs early in his proclamations as an activist in the Step-It-Up movement. He sees all environments as Vermont-like, where one may very well walk across the entire state in a matter of days and where mining and refining fossil fuels neither provide a direct economic livelihood nor threaten the landscape and water supply. McKibben appears to relish the reputation he has eared as a "fiery agitator who spews venom," in Burke's words; the very kind of leader who is least likely to be persuasive. He does not "bore from within" by employing language familiar to the fossil fuel industry in ways that will defuse potentially combative positions of both industry and environmentalists. To bore from within is to enter into conversation with individuals and groups who do not yet recognize the extent of shared rhetorical grounds, but can be reached through carefully selected terminology that bridges

ideological gaps rather than constructing rigid battle lines. Instead, McKibben appears to enjoy his new identity as the opponent of Big Oil.

Unfortunately for *350.org*, McKibben has chosen to fulfill only this one aspect of the rhetorical responsibilities of a movement leader: Creating an identity of *350.org* as the opponent of fossil fuel use. My analysis of his choices reveals that the rhetorical force necessary to propel a movement forward and the compromise necessary to actually solve a problem are mutually exclusive. The position of social movement leader requires adherence to a piety. It requires security in the one view. It requires an incapacity to be swayed from the one message that must be expressed over and over again in simple terms to broad audiences of potential adherents, in multiple media with enough force to persuade adherents to join the cause. In other words, the social movement leader must be trained into an incapacity that renders him incapable of being turned from the cause.[32]

The movement leader must also be good at training others into an equally uncompromising incapacity. Proponents describe this as standing firm in the face of all opposition; opponents, stubbornness, or worse. If all stakeholders in a debate remain incapable of adopting a new orientation, no agreement is possible that will solve the issue addressed by the movement. No change is made because none of the parties

[32] This rigidity is diametrically opposed to the flexibility David Abbasi advocates: "We need to recruit more "dual-identity individuals to build these bridges in our society: religious scientists, politician-scientists, journalist-scientists, religious politicians and other permutations" (46). Andrew C. Revkin advocates a similar flexibility to counter the "tyranny of balance," or false symmetry in media representations of the climate change debate: "to cultivate scientists in various realm—chemistry, climatology, oceanography—whose expertise and lack of investment in a particular bias are well established. These people can operate as guides more than as sources to quote in a story" (152).

compromises; worse, none even listens to the other because to do so is to acknowledge the other. And our incapacities are so thoroughly trained into us, as the social movement leader desires, that we cannot be shaken from them. If, however, advocates of the reduction of carbon emissions remain uncompromising in their position—as required by the social movement leader—and the deniers of climate change also remain steadfast, then solving the problem of climate change falls to a place secondary to maintaining position.

Burke scholars will be interested in my study because it constructs new connections between familiar terms, such as circumference, piety, terministic screens, and components of the scenes of human drama. Burke aptly describes the move made by both environmentalists and climate change deniers to circumscribe their rhetorical scenes so that their audiences view themselves as agents in a momentous social movement: "In times of adversity one can readily note the workings of the 'circumferential' logic, in that men choose to define their acts in terms of much wider orbits than the orbit of the adversity itself" (*GM* 84). In my new construction of the relationship of these terms, I argued that a movement leader delineates the territory to be inhabited by adherents with the terms the leader chooses. The pious inhabitants must then accept the new orientation so thoroughly that they enthusiastically expand the circumference of influence to include more adherents, in the case of *350.org*, to the population of the whole globe. The terms with which the adherents and the movement leader express their piety to others creates separation from inhabitants of established scenes. In addition, I argued that the terms themselves migrate in their roles as scenic elements, becoming agent or agency in later scenes of environmental rhetoric.

I also contribute to Burke studies by applying Burke's notion of scene to a digital environment, an environment that developed after Burke's time. Scenes of communication, in Burke's view, are not mere *places* where people talk. They are live situations where embodied beings use their physical presence and their language to invoke pasts, create present moments, and enact futures by talking over what will happen next. The scenes in which UN agencies have conversation are such live situations. Visitors to the *350.org* digital album engage in interior conversations or launch written comments onto blogs, creating simultaneous rhetorical situations in the digital world that co-exist with live body conversations at physical locations, such as conference rooms at the UN. Rather than confounding the issue of climate change, this multitude of conversations acts as *copia*, out of which may emerge solutions not anticipated by a single agent in an isolated rhetorical situation. In the case of potential environmental activists, the IDCA photo album becomes a scene of activism. In the case of the United Nations systems or *350.org* declarations—even duplicated declarations—operate rather like wine at a dinner party: keeping folks at the table a little longer so that the scene—whether it be an online forum, a digital photo album comment posting, or layers upon layers of negotiations over global warming accords—is ever renewed. Burke envisioned such idealism as a drama in which agents might move the action toward redemption.

An additional application of Burke's model of circumferences suggests what he might have said about the digital cloud, had he lived into the twenty-first century. Each agency and committee at the United Nations, for example, defines its work in a terminological circumference that overlaps that of other agencies and committees. It is

not as if each agency or committee or summit abandons the previous scenes, but instead adds at least some new territory to the scene, territory that in the best case is productive. Today we might call Burke's vision a prescient theory for cloud power: Dispersing a task over multiple sites invites the best (or, granted, the worst) minds to contribute ideas and solutions. So what if multiple UN agencies are tackling climate change? So much the better. A single strand of effort in the name of streamlining may very well work against solving the complex problems of global warming. Complex problems demand complex solutions. Seen from the perspective of four decades later—one whole generation—the audacity of the claim of coordinating UN environmental activities appears naïve, but seen in terms of a diachronic rhetorical situation in which terms evolve and circumferences of understanding can be enlarged, the UN's ongoing initiatives appear workable. Even if every individual on the planet were motivated, as Burke suggests, by the crisis of global warming, 7 billion individuals could not make a difference. Only by social cooperation might global change be effected. Of course, as soon as the term "social cooperation" enters the scene, the same people who denied that climate change was and is a crisis cry, "Communism." In this case the terministic screens of either "communism or " a drag on the economy" continue to have a powerful effect on the public.

The Burkean strategy "boring from within" calls for adopting the language of the opponent (or potential adherent who likely resists) in order to enter as much as possible into the circumference of the other, thus constructing an enlarged circle of understanding that can include them both, but which assumes movement into the shared space. In other words, coming together in a newly constructed circumference,

circumscribed by both familiar and new terminology, is the act of people who actually want to solve the problem that previously eluded them. We can observe this strategy already in action in the industrial and urban planning in places such as Virginia Beach and Philadelphia. As I described in chapter 2, the State of Virginia is currently spending billions to raise her shipyards, a budget move approved by legislators, as long as the language of climate change was deleted from the funding bill. Virginia is not alone in spending billions on adaptations to rising sea levels: The new Route 52 causeway to Ocean City, New Jersey, was built 10.8 feet above the current mean sea level in anticipation of rising sea levels in the next five decades (Avril).

Thus, at a local operational level, separate from or in spite of the rhetorical situation, decisions are made, construction advances, dollars are spent to mitigate the experienced realities of global warming. In these two examples, action is not balked; action advances because agents have abandoned the scene of the debate about global warming or climate change terminology and created a new scene circumscribed by terms of *how*, not *whether*. The agents negotiated first to find a shared terminology of how to lift docks and bridges out of rising seas, not if the seas were rising, nor why. Acting upon the understandings that created the new scene requires moving away from the conceptual debate into the operational debate, in other words, abandoning the debate over whether temperatures are rising and increasing sea levels, and going straight into industrial design conversations about how to raise the docks and bridges. Each of these new connections offers me and other Burke scholars an opportunity to examine rhetorical situations where participants move consciously away from defending terminological territory toward a shared vocabulary of negotiation.

In addition, as I have taught during these three years of working on this project, I have developed productive strategies for students to engage in rhetorical analysis of readings about science published in mass media, such as the *New York Times* and *Orion Magazine*. At first I asked first-year composition students to select a science topic that mattered to them, investigate it, and write an argument defending its importance to a target audience. As I worked through the research process with them, I discovered not only deficits in their ability to navigate the general research tools of the university library, but a disconcerting inability to select and employ evidence in defense of claims about science. Certainly, these are problems for many first-year students, but as I reconfigured the assignments for subsequent semesters and intermediate composition students, I realized that they might also create a rhetorical history to trace the debate over a science-related public policy, such as federal fuel economy standards. This particular assignment requires the students to investigate the nature, scope, and origin of the science-based problem addressed by the policy, as well as to discover the stakeholders and their positions before the policy was accepted. In addition, students have examined the relationship between science and the humanities, a new topic to many of them, but relevant since the composition courses I have taught are housed in English departments. Because my goal is to demonstrate the integration of the sciences and the humanities, rather than to privilege the STEM disciplines, I create assignments inviting students to read works where science and technology are featured, but in literary genres, rather than science journal articles. These readings include Brian Doyle's essay "Joyas Volardores," as well as the "Ode to Man" from *Antigone* by Sophocles. The students report not only an increase in their own science literacy, but an

appreciation for the complexities of regulations created because of scientific research. In the current political environment when the term *regulation* is used synecdotically for unwarranted government intrusion, students discover how slow and unwieldy is the process of proposing, debating, and adopting regulations that actually improve organic food production, for example, or conserve municipal water supplies, and protect oceans and beaches from offshore drilling oil spills. Students acknowledge the taxpayer as a stakeholder in both the debate before the legislation was adopted and afterward in reaping the benefits of the protections, but also envision themselves as paying tax dollars to support inspection and enforcement. I have observed students' delight in using new research sources, such as the *Congressional Record* and a variety of helpful federal government websites to lend credibility to their work. In all, my teaching science literacy and the rhetorical implications of science in a humanities-based composition classroom surprise students and introduce them to new genres of writing.

A final implication for my study and a possible future study is that scholars of rhetoric have a role in the creation of public policy, at least in an advisory role, if not other types of intervention. I do not mean to suggest that rhetorical critics become social movement leaders, but movement leaders have much to learn about their rhetorical responsibilities from the academy. In the first place, as Randy Olson and Scott and others have argued, scientific facts do not stand for themselves; they have to be argued and launched actively into conversations where they are likely to make a difference. Or rather, they have to be made to make a difference. Oreskes ("My Facts") argues that scientific facts—and pseudo-facts—can be made to travel by scientists themselves, by science journalists, or by others well acquainted with media, as is clear

from the success of the climate change denialists' campaign. In this sense, scientific facts do not arrive unbidden on the screens, doorsteps, or lips of adherents and movement leaders. The science of climate change, like the science of herd immunity and malaria control, is propelled into digital, print, and spoken media by individuals and movement groups who know how to select terms, situate them into genres and products that fit a rhetorical situation, and then deliver them to an audience. The need for the scientist rhetor is so urgent as to compel the Union of Concerned Scientists to sponsor the publication of Hayes and Grossman's *Scientist's Guide to Talking with the Media*. Describing a class of "civic scientists," Hayes and Grossman argue that scientists may participate in and benefit from a range of rhetorical situations, from "overt attempts to influence governmental policies" to improving "public appreciation and understanding of science and scientific topics" (154). Hayes and Grossman's advice, "to inject rational, scientifically sound thinking into public policy"(171), indicates that the scientist can best learn the role of "science rhetor" from the academic discipline of rhetoric.

What is at stake for the social movement leader—and why my study is important—in this diachronic rhetorical situation is that the importance of the current scene of humans on a warming planet cannot be underestimated. As Burke says,

> man is not only in the situation peculiar to his era or to his particular place in that era. . . . He is also in a situation extending through centuries; he is in a 'generically human' situation; and he is in a 'universal' situation. Who is to say, once and for all, which of these circumferences is to be selected as the motivation of his act, insofar as the act is to be defined in scenic terms? (*A Grammar of Motives* 84)

What scene does the human occupy, except the one he deliberately constructs by virtue of the terminology with which he defines his scene? Indeed, this is the recognition that is fundamental if the changes described by *350.org* are to be enacted. All humans must understand their situation as universal, as the occupying of a contemporary scene that shares a circumference with all other future human scenes. That is the circumscribed life of humans on this planet.

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VITA

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Background

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Education

- Diploma, Monterey High School, Lubbock, Texas, 1967
- Bachelor of Arts, English, Texas Tech University, Lubbock, Texas, 1971
- Master of Arts, Humanities, University of Dallas, Irving, Texas, 1998
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Experience

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- Writing Tutor, University of North Texas Health Sciences Center, 2013-Present
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- Graduate Instructor, Texas Christian University, 2010-12
- Assistant Manager, Writing Associates Program, Texas Christian University, 2009-10
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Professional Memberships

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ABSTRACT

A RHETORICAL HISTORY OF 350.ORG'S
INTERNATIONAL DAY OF CLIMATE ACTION

by

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Chapter 1, "Introduction: Wait 'til It's Bad" introduces my dissertation as a scenic, rather than narrative, rhetorical history answering Marlia Banning's call for a way to respond to public doubts about climate change science. I explain how Burke's dramatistic theory of human motives provides a framework for my construction of three scenes of debate about the environment. I explain how Burke's theory of terminological screens provides a sensitive heuristic for analysis of the vocabulary used by Bill McKibben's group *350.org* to persuade digital and embodied publics of the need to reduce carbon emissions.

In chapter two, "Choosing Terminology in the Global Warming Drama," I provide a close reading of selected documents in scenes of pro- and anti-environmentalism in the decades before the International Day of Climate Action, an embodied and digital event organized by *350.org* to influence decisions at the 2009 United Nations Framework Conference on Climate Change. I analyzed the potential of vocabulary to motivate and de-motivate environmental activism.

In chapter three, "Bill McKibben and *350.org*: Circumferences and Reductions in the Rhetoric of a Social Movement," I argued that contracting and expanding terminological circumferences first establish and then limit the scope of *350.org*'s influence. My examination of McKibben's rhetorical efforts reveals his ability to manipulate terminological circumferences, but also his failure to deflect widespread public attention from the arguments of climate change deniers.

In chapter four, "Overcoming Trained Incapacity," I created a new way of seeing the connection between rottenness of perfection, trained incapacity, and piety by demonstrating how individuals acquire a vocabulary to express their worldview and subsequently rehearse and reiterate that worldview into a perfectly rigid set of beliefs capable of blinding the individual to other views.

Chapter 5, "Responsibilities of the Social Movement Leader: Piety or Rigidity" expands the overall conclusions of this study, its contributions to social movement rhetoric, and identifies ideas for further study.