
THE DETECTION AND ATTRIBUTION OF CONSPIRACIES: THE CONTROVERSY OVER CHAPTER 8

1988 was the year global warming hit the headlines in the United States, when atmospheric scientist Jim Hansen of NASA's Goddard Institute of Space Sciences testified before Congress asserting "99 percent" certainty that human emissions of greenhouse gases already were causing severe changes in the global climate. Other scientists were soon heard supporting his concern about potential future consequences, with statements to the effect that "the problems unaddressed have the potential of turning the world into a chaos not greatly different from that produced by global war" (Lawson 1990). Encouraged by the example of the 1987 Montreal Protocol to reduce global emissions of stratospheric ozone depleting chlorofluorocarbons, or CFCs, many concerned about global warming hoped to gain the same level of public and diplomatic support of action to reduce global emissions of greenhouse gases. The success of influential mainstream scientists in creating concern about the issue soon created a backlash among some scientists, politicians, and socioeconomic forces in U.S. society. The backlash comprises accusations concerning the motives of scientists and environmentalists stirring up public concern, and it has provoked a wealth of equally acrimonious counteraccusations, rendering the scientific controversy—the subject of this paper—bitter and rife with conspiracy theories.

As a result of concern about humans' possible "dangerous interference with the climate system," the United Nations Environmental Program and the World Meteorological Organization set up the International Panel on Climate Change (IPCC). Designed to assess the science of climate change, the IPCC provides the scientific reports informing international negotiations under the United Nations Framework Convention on Climate Change (FCCC) to reduce global emissions of greenhouse gases. The first (1990) IPCC report expressed concern but also uncertainty regarding the reality of human-induced climate change. It was thus a significant new development when the IPCC released their 1995 report (in June 1996), concluding that although observed temperature changes

could be due to natural variability, "the balance of evidence suggests a discernible human influence on global climate" (Houghton et al. 1995). This conclusion led many environmental and political leaders, nationally and internationally, to call for controls on fossil fuel consumption in favor of renewable energy sources. The 1995 report was released one month before the first meeting in Geneva of the Conference of the Parties (CoP) under the FCCC to discuss international reductions in greenhouse-gas emissions. Key to the report was Chapter 8, which assessed the science seeking to detect changes in the climate record and to establish whether observed changes can be attributed to humans. The chapter concluded that a "human signal" in the climate record seemed to emerge with recent improvements in the understanding and simulation modeling of the climate system.

Then, on 12 June 1996, the month the IPCC report was issued, an op-ed letter appeared in the *Wall Street Journal* by Frederick Seitz, a now retired scientist with an impressive résumé, including past posts as president of the American Physical Society, president of Rockefeller University, and president of the National Academy of Sciences.

"A Major Deception on Global Warming," stated the large title of the letter. The letter concerned revisions to Chapter 8. Suggestive of his social concerns and values, Seitz feared that policymakers would act to reduce greenhouse-gas emissions based on the IPCC report, something he assumed to have "an enormous impact on U.S. oil and gas prices" and an "almost certainly destructive impact on the economies of the world." He wrote that like other IPCC reports, this latest report is held in high regard because it has been peer reviewed and approved by an international body of experts. But, he warned, things are not what they seem; there is a deception involved on the part of scientists who made final editing decisions of Chapter 8:

this report is not what it appears to be—it is not the version that was approved by the contributing scientists listed on the title page. In my more than 60 years as a member of the American scientific community, including service as president of both the National Academy of Sciences and the American Physical Society, I have never witnessed a more disturbing corruption of the peer-review process than the events that led to this IPCC report. (Seitz 1996)

The IPCC is divided into a steering committee and three working groups dealing, respectively, with the science of climate change; impacts, adaptation, and mitigation of climate change; and economic and social implications and policy responses. Within each working group are "lead authors" of individual chapters, usually consisting of three or four scientists, plus a dozen or so contributing authors. The chapters are drafted, then sent out to be peer reviewed, a process involving scientists of varied persuasions and affiliations, including

national research labs, industrial and environmental groups, governments, and universities. An estimated twenty-five hundred scientists worldwide were involved in the peer review of the 1995 report. The chapters and summaries constituting the report have to be approved at a final plenary meeting where all participants in the process—government organizations, industry groups, and nongovernmental organizations—interact with the scientists to forge the language by which to state current scientific knowledge of climate change. This is where the wording and general presentation of chapters and conclusions are decided on.

Governments participating in the IPCC process had accepted a draft of the chapter at a meeting in Madrid in November 1995, and all participants in the process had accepted the draft at the full plenary meeting in Rome the following month. Seitz wrote in his op-ed that the version agreed upon in Madrid "kept the participating scientists and the IPCC honest," but that this version was changed afterward, without proper authority; fifteen sections had been changed or deleted, he charged, with the effect "to deceive policy makers and the public into believing that the scientific evidence shows human activities are causing global warming." Seitz singled out the chapter's convening lead author, atmospheric scientist Benjamin Santer, as most likely responsible for the changes.

Seitz's charges of deception and conscious plotting for political gain provide a quick introduction to the style of argument that characterizes scientific controversy about climate change—a controversy taking place through the media and involving scientists but also environmental groups, politicians, conservative think tanks, fossil-fuel-related industries, and public-relations firms, among others. A majority of climate scientists express some degree of concern about the possibility of human-induced climate change, and no one disputes evidence that industrialization processes have increased atmospheric concentrations of the heat-trapping greenhouse gases. However, significant scientific disagreement exists concerning the consequences; to the extent that there's agreement that the net effect will be increases in global average temperatures, the size, timing, and impacts are subjects of debate. Seitz is among the scientific factions skeptical of the theory of human-induced climate change, and he is part of a subgroup among skeptical scientists I refer to as the "contrarians" due to their particularly staunch opposition to concern about human-induced climate change, as well as a list of other issues of environmental concern, such as the use of CFCs, the pesticide DDT, and nuclear technology. They have been unrelentingly active, vocal, and high-profile in their attacks of mainstream scientific pronouncements of increasing scientific certainty and concern about the possibility of human-induced climate change. As a result, contrarians have been extremely influential in the U.S., despite the fact that they constitute a group of less than ten in the U.S.

Most broadly, in this chapter, I will (1) show the pervasiveness of conspiracy theories in the debate about human-induced climate change, and (2) render evident the disconnect between such theories—with their suggestions of tightly organized, deliberate, and sinister acts of deception—and the actual complexity of actors and decisions that resulted in the revisions. I will show that the drafting of the report and editorial changes were made in a context of much less clarity and coherence, and with no clear acts of deliberate deception; it was, rather, a context characterized by imprecise and indeterminate knowledge, meaning, and rules, and involving inherently “messy” processes of negotiation of different possible representations, each involving different sets of interests and values. This study identifies among scientists and groups on both sides of this controversy a tendency noted by Richard Hofstadter in his writing on conspiracy theorizing and paranoia in American society:

The typical procedure of the higher paranoid scholarship is to start with . . . defensible assumptions and with a careful accumulation of facts, or at least of what appear to be facts, and to marshal these facts toward an overwhelming “proof” of the particular conspiracy that is to be established. It is nothing if not coherent—in fact the paranoid mentality is far more coherent than the real world since it leaves no room for mistakes, failures, or ambiguities. (Hofstadter 1967, 36)

In addition to showing the assumptions of conspiracy, this case study shows the ease with which unverified claims and suggestions of conspiracy are disseminated among sympathetic audiences. I suggest some reasons why and how this happens and illustrate how claims or suggestions of wrongdoing are changed and even further exaggerated in the process of their dissemination.

The Marshall Institute

Seitz went straight to politicians and the media without consulting IPCC leaders and rules. Without specifying the source of his understanding of the IPCC rules, Seitz confidently stated in the op-ed that “nothing in the IPCC Rules permits anyone to change a scientific report after it has been accepted by the panel of scientific contributors and the full IPCC.” He concluded that “if the IPCC is incapable of following its most basic procedures, it would be best to abandon the entire IPCC process, or at least that part that is concerned with the scientific evidence on climate change, and look for more reliable sources of advice to governments on this important question” (1996). To Seitz, a more reliable source would be the Marshall Institute, of which he is chairman. The Marshall Institute is a conservative Washington, D.C.-based think tank established in 1984 with the objective of influencing public opinion and policy in favor of unregulated free-market forces, national defense technology, and nuclear power (Fleagle 1994, 154; Gelbspan 1997, 52; Seitz 1994, 384). During

the Reagan years, the Marshall Institute was concerned to promote Strategic Defense Initiative, also known as Star Wars. The institute has since turned its focus to environmental issues, forming perhaps the most influential—and certainly the most prestigious—faction among U.S. scientists skeptical of the theory of human-induced climate change. It is supported by “private donations,” and forms part of the “conservative labyrinth” (Diamond 1995, 205) and “counterintelligentsia” built by political and economic elites in the U.S. since the 1970s in response to social changes, including antimilitarism, and environmentalism, affected by the rise of protest politics after 1968 (Fischer 1991; Ricci 1993). By the early 1980s the right wing had built a strong and broad network of foundations, corporate backers, and organizations, including military lobbies, electoral vehicles, media watchdogs, and campus outreach (Diamond 1995, 205).

The most high-profile Marshall Institute scientists are part of the generation of physicists traditionally privileged among U.S. scientists and politicians due to their importance for military defense during most of the twentieth century. Their status and influences waned some with the end of the cold war, but they formed an important source of scientific advice on the climate issue during the Bush administration. They also continue to influence important members of Congress, especially Republicans, including Dana Rohrabacher, chair of the Subcommittee on Science and Energy within the Science Committee, a Republican representative from California, and vocal critic of environmental regulation and global warming theories.

The Newness of the Process and Imprecise Rules

Traditional conceptions of the function and role of science as objective, establishing “truth,” and able to bring order to political emotion and factionalism, were shattered in the “environmental era” by scientific controversies revealing disagreement within the scientific community (Hays 1987). Climate change is one of the new frontiers of science that environmentalism has pressed forward, and the ensuing debates to which these new frontiers generally have given rise has put intense pressures on the traditional methods of fashioning agreements—methods consisting in the give-and-take of open discussion in journals and meetings, and in more private interchanges in peer reviews of research proposals and results.

The IPCC represents an effort of cooperation and consensus formation unprecedented within the scientific community in terms of its size and scope, and pressures to form consensus position within the community are new to the climate change community as a whole; prior to the recent surge in concern about climate change, climate research was not associated with such urgency and policy relevance, and the impact of this change within the atmospheric

sciences has been profound. An apparent result of the newness, large scope, and complexity of the IPCC process, the rules guiding the formation of the 1995 IPCC report were imprecise, sufficiently ambiguous to enable different persons to draw markedly divergent conclusions based on the same formulations. Seitz's charge that the editorial changes were unauthorized was not based on precise knowledge of the IPCC rules; the editorial revisions were neither in clear conformity with nor in violation of the rules, which simply weren't precise with regard to the point in the process after which authors must not make more editorial changes. A certain confusion reigns among participants and critics of the IPCC process due to partial knowledge of existing rules, the imprecision of the actual rules and procedures guiding the process, and the almost overwhelming complexity of the processes, procedures, and competing claims involved.

The confusion is only heightened by the involvement of strong vested interests in the climate debate. For example, some fossil-fuel industry groups have created organizations and "front groups" with green sounding names and, sometimes, the appearance of being grassroots organizations, obscuring the fact that they are in fact established to counter environmental concerns. Oil and coal companies have spent millions of dollars to hire public relations groups to orchestrate such efforts as well as aggressive media campaigns seeking to undermine public concern about global warming (Gelbspan 1995; 1997). An early example of such campaigns was the Information Council for the Environment (ICE). Run by the Washington, D.C., public relations firm Bracy Williams and Company, ICE was established in 1991 by twenty-four coal companies, mining associations, and public-utility corporations at a time when legislation was being proposed to impose energy taxes and regulations on fossil-fuel use and industries. The explicit aim of ICE was to persuade the government and the public that global warming is a myth, and to thereby undermine conversion to less-polluting alternative energy sources. "If a slick ad campaign can cool Americans' enthusiasm for controls on greenhouse warming, stand by for a big chill," wrote *Science*, describing the scientific inaccuracies of the ICE ads (*Science* 1991). Upon further examination of the controversy over Chapter 8, it became clear that fossil-fuel industries also were involved in the creation of this controversy.

The Global Climate Coalition Report

In his op-ed letter, Frederick Seitz suggested that he had "witnessed" what he considered a "corruption" of the IPCC peer-review process. Though this wasn't clear from his letter, Seitz was not part of the IPCC process; he is not a climate scientist but a retired physicist whose scientific contribution has been mainly in the field of solid-state physics. Seitz himself learned of the charges

from elsewhere; they had circulated in informal networks between scientists, industry groups, and politicians before their debut in the mainstream media with Seitz's op-ed letter in the *Wall Street Journal*.

I first learned of the charges two weeks prior to Seitz's letter when interviewing another Marshall Institute-affiliated scientist, physicist William Nierenberg, director emeritus of the Scripps Institute of Oceanography in California. Nierenberg was coauthor with Seitz and Robert Jastrow of a 1989 Marshall Institute report (Jastrow, Nierenberg, and Seitz 1990) that centrally informed the Bush administration's position on human-induced climate change (Rowlands 1995, 80). In his interview with me, Nierenberg referred to a document about the changes to the IPCC report that he had received through two different channels. He had not yet carefully read the document, but he relayed with confidence what had happened: the changes had been made by people in the highest echelons within the IPCC, without the knowledge and consultation of the lead authors of the chapter.

NIERENBERG: What it is, there is a chapter of which Tim Barnett, Wigley, Santer, and four or five others were authors, and about twelve people were advisors. It is a standard procedure. And what they were writing about was the detectability of—I forget the exact details about that chapter. And they finished it, and they sent it in. It had been reviewed, and so on. And the editors that finally put it together—they have done it before, but not in this way—they went ahead and edited it, to take out just about—I don't know how to put it; it just altered the *whole meaning* of the document. *Without* permission of the authors. In fact there is an editorial in the *Washington Times* about this. [*He finds the document, leafs through it*] They call it scientific cleansing now. It's got a new name.

LAHSEN: And the changes, you feel, really change [the meaning]?

NIERENBERG: Well *you* can decide. It's—[*scoffing laugh*] people think that it is just *outrageous*! What is more, it was done without—they are not grammatical changes—it was done, they never consulted the authors. Anything that would imply that the current status of knowledge is so poor that you can't do anything is struck out.

Nierenberg's rendition contradicted that of Seitz, who speculated that the convening lead author likely was responsible for the changes; by shifting the responsibility for the changes from the lead authors to unnamed and unknown people with no official editorial authority, Nierenberg added a new, more conspiratorial twist to the story. Nierenberg's rendition suggests the role of misunderstanding and misinformation in the dissemination of conspiracy theories surrounding Chapter 8. It also suggests the role of trust in the sources of information; how such charges of conspiracy can be accepted as valid and based on clear facts without being verified, as long as the source is trusted. When I asked

who the report was by, Nierenberg suggested that that was irrelevant: "Oh—it just—it doesn't matter by whom! All they did was, they took the final report and compared it with what was sent in for publication."

The source of the charges, I later learned, was the Global Climate Coalition (GCC), a Washington, D.C.-based lobby group formed by about sixty companies and trade associations from energy and manufacturing sectors, including ARCO, Amoco, Texaco, Phillips Petroleum, BP America, Shell Oil, the National Coal Association, and the American Petroleum Institute. A GCC document, entitled "The IPCC: Institutionalized 'Scientific Cleansing,'" was sent to reporters, congressional representatives, the White House, and certain scientists. The document outlined the revisions and compared the draft of Chapter 8 that had been accepted in Madrid to the final, published version. Like Seitz, the GCC identified not unnamed high-ranking officials but the lead authors of the chapter as the ones most likely responsible for changes, similarly alleging that the changes were unauthorized and "politically motivated," intended to suppress scientific uncertainties and to thereby increase scientific support for attribution of changes in climate to human activities. As a lobby group for fossil-fuel industries, the GCC does not hide its resistance to greenhouse-gas emission reductions. Prior to the meeting of the Conference of the Parties (CoP) under the FCCC in Geneva, officials associated with the GCC publicly expressed concern that the 1995 IPCC report would result in regulations to reduce greenhouse-gas emissions from fossil-fuel combustion (Feder 1996).

Reflective of the role of trust and of convergence of views in the dissemination of conspiracy theories, the charges by the GCC traveled unchanged and unverified through politically conservative channels receptive to the GCC's antiregulatory, probusiness point of view, appearing in publications such as *Energy Daily* and the *Washington Times* (Wamsted 1996). The charges were given credibility without verification and without consultation of alternative sources for perspective, defense, or deeper knowledge about what happened and about the actual IPCC rules and procedures. Within a short period, other articles appeared in the fossil-fuel industry-underwritten *World Climate Report* (1996), in the *Financial Times*, *Energy*, and the *Economist* (Feder 1996). Articles about the controversy that did present alternative perspectives appeared in other publications, including *Science* (Weiss 1996), *Nature* (Masood 1996), *Physics Today* (Feder 1996), and the *New York Times* (Stevens 1996).

Mobilization of the Defense: Consequent Letters, e-mail, and Exchanges

The evening of 12 June, the day Seitz's op-ed appeared in the *Wall Street Journal*, convening lead author Benjamin Santer (of the Lawrence Livermore National Laboratory's Program for Climate Model Diagnosis and Intercomparison) sent out an e-mail message appraising some eighty-two colleagues around

the world of the developing controversy and urging everyone to write letters of protest to the *Wall Street Journal* and *Energy Daily*. The defense machinery set into motion. The day following Seitz's op-ed, the Union of Concerned Scientists (UCS) distributed through their Sound Science Initiative (SSI) an e-mail message with the subject heading: "SSI Alert: IPCC under attack!" Describing the charges as an "extremely serious challenge to the integrity and credibility of the IPCC," the UCS message, like Chapter 8 convening lead author, Ben Santer, urged all recipients to write letters to the *Wall Street Journal*. They called upon everyone to monitor their local newspapers for other attacks on the IPCC and to respond to them in defense of the IPCC. The e-mail message asserted that Seitz's allegations were categorically false and that "there has been no politically-motivated doctoring of the IPCC report, and the [IPCC's] own procedural rules have not been violated." The UCS did not describe how it could ascertain the motives of the lead authors responsible for the changes. Moreover, again reflective of the role of social networks of trust in the circulation of information and of the potential for unchecked information to be widely distributed (this time on the side of "the defense"), the UCS message did not specify the source of its rendition of the IPCC rules. Yet it provoked a stream of letter writing.

Several scientists who wrote letters in defense of Ben Santer conceded, upon my questioning, that they had not checked the draft version against the published version to verify the nature of the changes, nor were they entirely clear as to the actual IPCC rules and procedures. Similar to Nierenberg on the side of the IPCC critics, many scientists supportive of the IPCC took their position in the controversy—and acted in the form of letter writing—primarily based on personal acquaintance with Ben Santer. Actors on both sides are often influenced by the mutual dislike and distrust that has built up since 1988 between the two opposing "camps" of scientists, organizations, and political actors and groups around the issue of human-induced climate change. Also shaping responses in support of Santer was the knowledge among scientists involved in drafting Chapter 8 that Ben Santer had fought during drafting sessions to retain passages emphasizing difficulties and uncertainties associated with detection and attribution of a human influence on observed temperature changes.

Official responses by IPCC scientists to the charges were soon published in *Energy Daily* (3 June) and in the *Wall Street Journal* (25 June). The 25 June issue of the *Wall Street Journal* included letters of response by Santer and thirty-nine other IPCC lead authors, plus a letter expressing full IPCC support of Santer's revisions by the top-ranking leaders of the IPCC: Bert Bolin, Sir John Houghton, and Luiz Gylvan Meira Filho. "No one could have been more thorough and honest in undertaking that task," they write, emphasizing that,

as the responsible officers of the IPCC, we are completely satisfied that the changes incorporated in the revised version were made with

the sole purpose of producing the best possible and most clearly explained assessment of the science and were not in any way motivated by any political or other considerations. It is, of course, easy to take isolated sentences from the earlier version that have been deleted or replaced to bolster arguments or suspicions such as those presented by Dr. Seitz. But that is to misunderstand the nature of the science with which we are dealing and the very open IPCC scientific assessment process.

The officials do not specify what the nature of the science is, perhaps a way for them to suggest that the science is sound *and* to suggest—without having to expand on this—that the IPCC process also requires IPCC scientists to operate in untraditional and, in the words of an IPCC scientist quoted below, in a “slightly non-scientific mode.”

According to the IPCC and associated scientists, the changes were authorized, the rules observed; the authors of Chapter 8 only acted as required by making changes in response to written comments from scientists, governments, and nongovernmental organizations (NGOs) before, during, and after the plenary meeting in Madrid. They also referred to the official demand of the United States in a letter from the U.S. Department of State (dated 15 November 1995) that IPCC chapters *not* be finalized prior to Madrid. The letter stressed that it is “essential,” and “in keeping with past practice . . . that chapters not be finalized prior to the completion of discussions” at the IPCC plenary meeting in Madrid, and that “chapter authors be prevailed upon to modify their text in an appropriate manner following discussion in Madrid.” It is unclear, however, that a government can unilaterally dictate IPCC procedures.

The defense by Santer and other lead authors in the *Wall Street Journal* (25 June) pointed out (correctly) that the changes did not alter the conclusion of the report that “the balance of evidence suggests that there is a discernible human influence on global climate,” nor the conclusion of Chapter 8 that, “taken together, these results point towards a human influence on climate”; both conclusions in the final report were entirely consistent with those in the draft and were unanimously approved at the Madrid meeting by delegates from nearly one hundred countries. Santer et al. stressed that uncertainties were not deleted, which my analysis below confirms. They also pointed out that some of the deletions were made in response to criticisms of “overlap” between Chapter 8 and other chapters in the same report, an issue that was raised often during the three drafting sessions prior to Madrid. The authors wrote that about half of the information in the concluding summary was integrated with material in another section within the chapter (section 8.6); the section containing the passages declared by the GCC, Seitz, and others to have been deleted did not disappear completely. I will return to this below, showing that the statements Seitz highlighted as deleted indeed can be read into the last section of Chap-

ter 8. However, I will also point out that certain wording in the chapter did subtly change the presentation of the state of scientific knowledge concerning climate change. Rather than conspiracy, this highlights the unavoidable role of language, judgment, and representation in assessment reports of this nature, and the insensitivity to this on both sides of the controversy, at least in their official rhetoric. The question of bias aside, the difficulty of accounting for editorial changes in this kind of scientific assessment, involving fluid processes of judgment and negotiation of meaning, is already apparent.

Analysis of the Revisions

Seitz claims that widespread skepticism among scientists about the theory of human-induced climate change is reduced to mere “hints” already in the draft, with the final version deleting even these—in Seitz’s view—too-faint expressions of uncertainty. Yet analysis of the revisions shows that the changes are not as dramatic as claimed by Seitz and the GCC, and that uncertainties are given substantial treatment throughout the chapter. Allegations that uncertainties were downplayed have to be considered in light of the chapter’s actual detailed description of current limitations of the science of detection and attribution of climate change. Simply checking the table of contents of the chapter shows that mention and treatment of uncertainties were not deleted, nor even reduced to “hints”; two entire sections out of the six that make up the chapter address uncertainties. One is titled “Uncertainties in Model Projections of Anthropogenic Change,” with the following subsections: “Errors in Simulating Current Climate in Uncoupled and Coupled Models,” “Inadequate Representation of Feedbacks,” “Flux Correction Problems,” “Signal Estimation Problems,” and “‘Missing Forcing’ and Uncertainties in Space-Time Evolution of Forcing.” The other section devoted to uncertainties is titled “Uncertainties in Estimating Natural Variability” and covers the difficulties of estimating natural variability based on instrumental data, paleoclimate records, and numerical computer models.

Analysis of the statements Seitz listed as deleted shows that the deletions were not as clear-cut or complete as he and others suggested. All three examples provided by Seitz to suggest deletions and deception can be found in, or inferred from, different sections in the final version. Whether the sentences in the final version form a satisfactory equivalent is open to interpretation, however. Seitz offered the following examples of deleted sentences to make his strong allegations of wrongdoing and deception:

- None of the studies cited above has shown clear evidence that we can attribute the observed (climate) changes to the specific cause of increases in greenhouse gases.

- No study to date has positively attributed all or part (of the climate change observed to date) to anthropogenic (human-made) causes.
- Any claims of positive detection of significant climate change are likely to remain controversial until uncertainties in the total natural variability of the climate system are reduced.

Though Seitz provides no examples of sentences possibly replacing the deleted sentences, such examples can be found in the final version, including this statement: "Finally, we come to the difficult question of when the detection and attribution of human-induced climate change is likely to occur. The answer to this question must be subjective, particularly in the light of the large signal and noise uncertainties discussed in this chapter."

The recognition that there are only "subjective" answers to "the difficult question of when the detection and attribution of human-induced climate change is likely to occur" implies that there is no conclusive evidence linking observed climate changes to human activities. The references in Seitz's examples of deleted sentences to lacking conclusive evidence—"None of the studies cited above has shown clear evidence;" "No study to date has positively attributed all or part;" and "Any claims of positive detection of significant climate change are likely to remain controversial"—are also arguably summed up in a sentence in the final version not quoted by Seitz that "few would be willing to argue that *completely unambiguous* attribution of (all or part of) this change has already occurred." (Seitz 1996)

The following example also shows that substantive changes to the chapter are not demonstrated through Seitz's examples of deleted sentences. The final version included this segment: "Some scientists maintain that these uncertainties currently preclude any answer to the questions posed above. Other scientists would and have claimed, on the basis of the statistical results presented in Section 8.4, that confident detection of a significant anthropogenic climate change has already occurred" (Houghton et al. 1995, 439). Ending the quote here, one could arguably consider the division of views represented (that is, into those held by "some" versus "other scientists") to be potentially manipulative, failing to specify the relative representativeness of the different views. It would have shifted the emphasis from the strong statements listed as deleted by Seitz ("No study to date has positively attributed all or part;" etc.) to sentences that might give the false impression that as many scientists maintain that confident detection of human-induced climate change has been made as maintain that it hasn't. This would have been problematic, since very few scientists consider human-induced climate change to have been detected unambiguously; the only claim to that effect I know of was made by Thomas Wigley in a quote in *Nature* described further below (Masood 1995). Even the studies that have

come out with the greatest statements of confidence about having detected a human influence on the climate have not been unequivocal; for example, the statistical study by Hasselman et al. (1995) found the human signal in the climate record with 95 percent certainty—which still leaves a possibility of being wrong.

But the chapter doesn't end on the "some vs. others" argument; it goes on to acknowledge precisely this—that "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."

There are, however, some subtle shifts in meaning between the draft and the final version. The word *completely* in the above sentence tilts the interpretation toward attribution rather than away from it. Had it been left out, leaving only "few would be willing to argue that unambiguous attribution of (all or part of) this change has already occurred," it would have incorporated the opinions of more atmospheric scientists.

The editorial changes arguably resulted in other subtle shifts in meaning. For example, the change from "we do not know" when unambiguous detection and attribution might occur to "the answer must be subjective" changes the assertion of unanimous recognition of uncertainty to simply describing this point as debatable. That can be taken to suggest that some scientists do claim to know. In e-mail correspondence responding to the charges of wrongdoing, one lead author explained that the replacement of "we do not know" with "the answer must be subjective" was made in response to criticism during the plenary meetings of the "we do not know" statement. Once again, it is very difficult for outsiders to know whether this is true. The importance of personal judgment in deciding whether these editorial changes are satisfactory should be clear to readers, along with the difficulty for outsiders to know whether the changes were or were not justified by the input received at the plenary meetings.

Of importance for this analysis is recognition of the subtlety of the changes in meaning resulting from the revisions—whether or not the revisions are perceived to be justified, which remains open to interpretation. The subtle changes between the draft and final version of Chapter 8—at least some of which might have been made in response to the criticism and peer review built into the IPCC process—constitute the foundation from which the critics derived their strident claims of "scientific cleansing"¹ and "major deception" on the part of IPCC affiliated scientists and bureaucrats. Hofstadter has written, "If for every error . . . one can substitute an act of treason, we can see how many points of fascinating interpretation are open to the paranoid imagination: treason in high places can be found at almost every turning" (Hofstadter 1967, 25). *Error* in Hofstadter's quote might in this case be replaced by "subtle editorial change."

Industry Involvement: IPCC Reports' Multiple Influences

Critics tend to represent the IPCC reports as one-sided documents with an environmentalist activist point of view excluding contesting perspectives and interests, but the reports involve significant ambiguity. In her study of the IPCC, political scientist Sonja Boehmer-Christiansen refers to the reports' summaries as "skillful exercises in scientific ambiguity" using "language which simultaneously allowed Greenpeace to call for a target of reducing emissions by 60 percent, and the UK Treasury to conclude that no action was needed until more scientific certainty was available—each citing the same source" (1944, 402). Also left out of contrarian renditions in the Chapter 8 controversy is the significant role of fossil-fuel industries among other antigreenhouse interests in the drafting of the reports and the fact that concessions also are made by groups who would like the wording to be more forceful.

Ben Santer commented on the role of such interests in drafting of Chapter 8:

We tried to represent the science in an accurate and balanced way. We did not shout, "Eureka! We have found the answer!" It became evident during the course of our work on Chapter 8 that powerful interests were intent on skewing the "balance" of the chapter, and on accentuating the uncertainties rather than what we had learned in the past five years. Such interests would have preferred us to attach three or four caveats to each statement documenting progress in our field. An extreme case of this was the view expounded at Madrid that there were no scientific bases for any statement made in Chapter 8, and that the entire chapter should have been deleted.²

The important role of fossil-fuel interests in shaping the report is also described in a *Nature* article about how Kuwait and Saudi Arabia, with clear interests against curbing fossil-fuel consumption, held up the three-day IPCC meeting in Madrid. They insisted on modification of the report's conclusion that "the balance of evidence suggests that there is a discernible human influence on the global climate," and that the evidence of detection and attribution of a human influence on climate be described as more uncertain than suggested by the draft. Suggestive of the importance of words and representation in the IPCC process, they based their argument in part on the word *preliminary* used in Chapter 8 to describe new climate model-based evidence important for the chapter's conclusions, interpreting this word as suggesting more uncertainty than reflected in the concluding statements. Thomas Wigley, a lead author of the chapter, later objected to the two countries' take on that word: "This word," he is quoted as saying in *Nature*, "implies that evidence for a human effect on climate change is initial, but clear and unambiguous. It does not mean that evidence of human influence on global climate is uncertain. We did not realize

how this word could be misinterpreted" (Masood 1995). Due to loss of time resulting from such resistance at the plenary meeting, entire sections of the report, though published, remained unapproved and hence less authoritative.

In a document distributed through e-mail, Greenpeace complained that these same delegates worked to "weaken" or "over-qualify" many of the IPCC conclusions. One of the examples it provides concerns the overall IPCC 1995 conclusion:

Industry attacked [Chapter 8] all the way through the review process and then at the IPCC plenary. Without those attacks the conclusion would have been stronger, not weaker, as industry alleges. The conclusion that "the balance of evidence suggests a discernible human influence on global climate" was adopted under extreme duress at the Madrid IPCC plenary, with Saudi Arabia threatening to block the meeting and with only a few hours time left to complete the adoption of the IPCC report. The lead authors present wanted words that were significantly stronger: "The weight of evidence [strongly] indicates a significant human influence in global climate." At least one wanted the word "strongly" inserted. Lead authors were increasingly sidelined during the final stage of the negotiation over the summary. Their preferred version clearly conveys more force than the finally agreed-upon text, which was very much a compromise pulled together at the last minute.

The Charges are Repeated and Increased

The IPCC responses in the *Wall Street Journal* provoked another set of letters on 11 July by Seitz and Fred Singer and Hugh Ellsaesser, two other contrarian scientists, repeating the charges and furthering the theme of secret, self-interested plotting and mystery. Singer is a solar physicist who designed the first satellite instrument for measuring atmospheric ozone. Besides several professorships, Singer has held positions with the U.S. Department of Transportation and Environmental Protection Agency. He abandoned such positions to establish—with mainly private donations—the Science and Environmental Policy Project (SEPP), over which he presides. Concerned to disseminate his views, Singer, like other contrarians, has established ties with groups of the political and religious Right in U.S. society. Singer has received material support from a conservative religious group led by Reverend Sun Yung Moon (Deal 1992, 89) which since the early 1980s has worked to build organizations promoting far right-wing politics. He has become a key organizer for scientists skeptical of the theory of human-induced climate change, often orchestrating letter-writing and petition campaigns against remedial action on behalf of human-induced climate change. Hugh Ellsaesser is now a retired meteorologist

and guest scientist at California's Lawrence Livermore National Laboratory (LLNL). He is isolated at LLNL, where he occupies an office in a trailer all by himself, immediately behind the trailer shared by Ben Santer and dozens of other atmospheric scientists. Communication between the two trailers has broken down and now takes place mainly through letter writing in major newspapers and journals.

In this second letter, Seitz repeats his allegation that the changes were unauthorized and suggests again that the IPCC is not to be trusted by the government. He writes:

Of course [IPCC procedures require changes in response to comments], but not after the governments have accepted the final draft. The fact is that someone connected with the presentation of the published version, presumably Dr. Santer and others, rewrote basic technical material in Chapter 8 with the result that scientific doubts about man-made global warming were suppressed.

With the vague "someone connected with," Seitz evokes conspiracy through the theme of not knowing precisely who made the changes. And he repeats his pitch for alternative scientific authorities on the issue: "Clearly, governments will have to look elsewhere than the IPCC for sound science on climate change."

Singer's letter contains even stronger suggestions of secretive plotting and corruption, with the words "revealed" (that is, something was hidden) and "tampered with for political purposes" in the introductory sentence, simultaneously bolstering Seitz's scientific authority: "Dr. Seitz, former president of the U.S. National Academy of Sciences, has revealed that a UN-sponsored scientific report promoting global warming has been tampered with for political purposes." Evoking detective imagery, Singer delineates the time frame within which the act of changing the chapter had taken place: "A crucial chapter of the IPCC's report was altered between the time of its formal acceptance and its printing." The theme of not knowing is evoked again when Singer makes a point of the fact that IPCC officials mentioned in a *Nature* article about the controversy (*Nature* 1996) were "quoted (but not named)." At the time of his letter, official responses by named IPCC officials had already appeared in the *Wall Street Journal* and elsewhere, rendering unnecessary his reference to "unnamed" IPCC officials, which works to further envelop the IPCC in an aura of secrecy and unaccountability. A similar suggestion of inherent untrustworthiness of the IPCC is made when Singer calls IPCC officials' denial of wrongdoing "predictable," implying that the IPCC can be expected to put up a front of denial in the face of such charges: "Predictably, there have been protests from officials of the IPCC, claiming that the revisions in their report, prior to its publication, did nothing to change its emphasis. They also claim that such

unannounced changes of an approved draft do not violate their rules of transparency and open review."

The words *claim* and *unannounced* similarly cast doubt on the reliability and transparency of IPCC officials' statements and actions. Yet the rules do not specify that all editorial changes have to be "announced."

Both Seitz and Singer emphasize the point that the chapter was altered. Seitz calls the changes "unauthorized," considering his initial editorial letter to have presented "facts" indicating that Ben Santer "and possibly others" made "major unauthorized changes" to the chapter. Importantly, and by contrast, Singer acknowledges that it is unclear whether the changes were or were not in accord with IPCC rules, but then quotes a *Nature* article (1996) about the controversy which wrote that "there is some evidence that the revision process did result in a subtle shift . . . that . . . tended to favor arguments that aligned with the report's broad conclusions." Singer's recognition that the changes might be in accordance with the rules is likely lost on most readers, however, surrounded as it is by suggestions of wrongdoing. Thus, immediately following this recognition, Singer proceeds with more of the same subtle but pervasive accusatory rhetoric, suggesting secrecy, conspiracy, and repression; he calls the IPCC summary a "political document" that is "economical with the truth" and that "has problems with selective presentation of facts."

Singer's criticism of the IPCC's presentation of facts suggests that *unselective* presentation of facts is possible; in reality it is the nature of representations to select and highlight certain things over others, and particularly so when what is requested in this interface between science and policymaking is an *assessment* of the science, an evaluation, that is, which by nature involves judgment and selection. The following excerpt from an interview with one of Chapter 8's lead authors reveals the considerations and difficulties that are part of drafting the IPCC reports. The lead author conceded in a personal interview the difficulty of the science-policy interface:

this is meant to be not a review of the science but an assessment of the science, and the audience is the policymaking audience, so it is a case where an international group of scientists is operating in a slightly nonscientific mode. And most of the people are not experts in communicating scientific knowledge or scientific uncertainty in a way that can be understood by policymakers or policy advisors. So, boy, the number of reiterations that individual sentences can go through in order to express a particular concept in a way that doesn't overstate but doesn't totally diffuse the issue by stressing the uncertainty. It is a very difficult road to tread, I think. What policymakers want to know is, Have we detected the greenhouse effect or haven't we? Black or white. But it is not black-and-white. So it is very difficult to word an assessment of the problem in a way that will provide useful

information to the people who need the information without completely discrediting the scientific approach to the problem.

IPCC officials' defense above that the final version of Chapter 8 represented "the best possible" and "most clearly explained" assessment of the science, and that the changes "were not in any way motivated by any political or other considerations," is not directly contradicted by this lead author's articulation. Their defense does, however, reveal a lack of self-reflexivity and recognition of the role of interpretation, judgment, and of extrascientific considerations in representations of climate change research. Recognition of the role of such factors in this fierce political debate is rare, and individual scientists who have acknowledged the role of values and beliefs in their scientific positions have subsequently suffered attacks on their scientific authority by opponents wanting to subsequently discredit them as too biased to offer credible scientific input on the subject.

Suggestions of Political Repression Connect with the Right

Themes of political repression and even of totalitarianism are evoked by the above critics of the IPCC through references to "unauthorized" deletions, "suppression of dissent," "political manipulation," "scientific cleansing," and the like, furthering suggestions of deliberate and organized plotting, intimidation, and abuse of power. These themes also constitute a shared discourse between contrarians and right-wing groups in U.S. society.

The theme of political repression is evoked repeatedly in Singer's letter, as in his reference to the IPCC's "selective representation of facts" and his claim that "politicians and activists striving for international controls on energy use (to be discussed in Geneva in July when the parties to the Global Climate Treaty convene) are . . . trying to marginalize the growing number of scientific critics." It is not clear that the number of critics is either growing or diminishing, but describing the momentum behind opponent groups as diminishing in size—and implying the force and numbers behind their own position to be growing—has obvious rhetorical gain. This strategy is found on both sides, as are suggestions of marginalization and even persecution; in the quote included above, Greenpeace described the Chapter 8 lead authors as "sidelined" at the Madrid meeting by industry lobbyists bent on weakening the IPCC report's conclusions. The large number of scientists involved in the IPCC, and the increasing confidence of the conclusions of their reports concerning detection of a human influence on climate, is often presented as illustrative of a growing consensus among scientists. Thus a June 1996 editorial in *Nature* characterized the contrarians as "a dwindling band of skeptics," asserting "growing support within the scientific community" for the IPCC view that "the balance of evidence suggests a discernible human influence on global climate" (*Nature*

1996). Of course, consensus knowledge is not immune to error, and it can discourage or deemphasize articulations and knowledge of alternative views.³ Even so, it requires perceptions of organized and sinister plotting on the part of a coherent group to perceive such processes as due to conspiracies rather than the diffuse working of multiple, ad hoc social processes and interests; as Hofstadter writes, conspiracy theories exceed the real world in their coherence, leaving little room for mistakes, failures, or ambiguities (1967, 36).

Each side in this controversy has its martyrs. Santer is described among IPCC scientists and supporters as victimized by the critics' charges of professional irresponsibility and violation of procedural rules, at great personal and possibly professional cost. In contrarian renditions, the alleged political repression by the establishment is painted as a defensiveness that becomes increasingly oppressive as the opposition to its "regime" supposedly mounts. Discourses by contrarians and their supporters frequently describe dissenters of the dominant view as righteous victims persecuted by powerful, repressive forces. (For examples, of this pervasive tendency, see the *Wall Street Journal* editorial [Jenkins 1993] as well as Singer's 11 July letter described here, both of which also manifest anticommunist rhetoric. With the decline of the cold war, actors from the Right have shifted their focus to environmentalist activists, identifying the former reds in the greens. Thus the late *Forbes* writer Warren Brooke, whose 1989 article was part of launching the backlash to scientific and public concern about climate change, wrote that "just as Marxism is giving way to markets, the political 'greens' seem determined to put the world economy back into the red, using the greenhouse effect to stop unfettered market-based economic expansion" (Brooke 1989, 97). Singer's suggestions of conspiracy graduate into theories in other writings, where his strong anti-regulatory views are expressed with anticommunist rhetoric. For example, in a piece called "Global Warming: Do We Know Enough to Act?" Singer writes on the "hidden-agenda problem," asking,

Why do so many different groups focus on greenhouse warming? Because the issue provides a wonderful excuse for doing things that they already want to do, under the guise of saving the planet. . . . More dangerous are those who have a hidden political agenda, most often oriented against business, the free market, and the capitalistic system. Of course, after the collapse of socialism in Eastern Europe it is no longer fashionable to argue for state ownership of industrial concerns. The alternative is to control private firms by regulating every step of every manufacturing process.

Singer then mentions those using global warming as a vehicle for international action, "preferably with lots of treaties and protocols to control CO₂ or perhaps even methane," or who view the issue as "a launch platform for an ambitious foreign aid program" (1991, 45–46). Singer sees the IPCC as an institution

aiding such efforts, and he has suggested elsewhere that climate change is a plot by "Third World kleptocrats" to find new excuses to demand money from the West (1992). More details outlining how such leaders of less developed countries have managed to enlist the international community of scientists.

The letter by Hugh Ellsaesser similarly exhibits the tendency of assuming great orchestrating powers on the part of opponents. Adding his own twist to the story, Ellsaesser considers the whole controversy around Chapter 8 unfortunate and attributes it to the manipulating powers of the opponents; Ellsaesser suggests that the controversy was masterminded by IPCC scientists and supporters through conscious plotting by which to divert attention from the weak basis for their conclusions regarding climate change: "By concentrating on IPCC rules and procedures, IPCC writers and supporters *have managed* to avoid the more important scientific debate as to whether 'the balance of evidence suggests that there is a discernible human influence on global climate'" (Ellsaesser 1995; emphasis added). Ellsaesser does not specify how IPCC writers and supporters masterminded the GCC's charges.

Like other contrarians, Ellsaesser has established ties with right-wing political groups; for example, he has associated with *21st Century*, a magazine by followers of Lyndon LaRouche, his name appearing on the list of fifteen people comprising the scientific advisory board. *21st Century* has published a number of articles by Ellsaesser,⁴ including at least one specifically criticizing the IPCC (1995). As Chris Toumey has described, LaRouche's ideology is strongly conspiratorial, believing the world is threatened by evil orchestrated by, among others, the London Financial Center, the Swiss and Venetian insurance cartels, the Soviet and U.S. governments, the Anti-Defamation League, Jesuits, European royalty, Socialist International, and communism generally (Toumey 1996, 85). In their publications, including a report titled *The Greenhouse Effect Hoax: A World Federalist Plot*, LaRouchies express their belief that the greenhouse theory is a plot by the above groups, centrally orchestrated by British royalty and communist forces, who, by means of the UN and environmentalist dogma, infiltrate and undermine the United States (Executive Intelligence Review 1989).

While there are significant discursive convergences between contrarians and political groups such as the ones described here, it is important to not simplistically lump together scientists like Singer and Ellsaesser. For example, in a November 1996 interview with me, Ellsaesser himself expressed that although he "occasionally contacts them and sends them his papers when he comes up with them," he is "not too sympathetic with a lot of the ideas LaRouche has." There are also instances where scientists do not realize or care to probe the points of views of particular groups soliciting their expert advice, sometimes simply reflective of the tendency for scientists to blind themselves to the "hermeneutic larceny" and cultural turmoil surrounding science in society (Tou-

mey 1996, 161, 164). For the purposes of this essay, the point of noting these connections is to show how contrarian suggestions of deception and conspiracy are amplified by political groups with even greater inclinations toward conspiracy theorizing.

Contrarians often explain their associations with extrascientific groups by means of their marginalization by the mainstream scientific community, and by what they portray as suppression of dissenting views. Exhibiting worldviews largely challenged by those shaped by the protest politics of the 1960s and 1970s, contrarians find themselves increasingly alienated from society, an alienation manifest in their opposition to main tenets of present-day environmentalist beliefs, which they consider economically dangerous and rooted in incomplete scientific understanding and irrational emotionalism (see for example Seitz 1997 and contributors to Lehr 1992). According to Hofstadter, perceptions of marginalization heighten tendencies to perceive social and political processes as conspiracies:

The situation becomes worse when the representatives of a particular interest—perhaps because of the very unrealistic and unrealizable nature of their demands—cannot make themselves felt in the political process. Feeling that they have no access to political bargaining or the making of decisions, they find their original conception of the world of power as omnipotent, sinister, and malicious fully confirmed. They see only the consequences of power—and this through distorting lenses—and have little chance to observe its actual machinery. (1967, 39–40)

Seitz's charges of deception might thus in part reflect the fact that he was not part of the IPCC meetings, "witnessing" the process only indirectly and through the mediation of accounts by the GCC and other interested parties. Despite their strong influence outside the scientific community, signs of disempowerment pervade contrarian discourses, a reflection of their marginalization by mainstream scientists, many of whom deny contrarians scientific authority on the issue of climate change and care little to engage with them in discussion.

Suggestions of conspiracy is also occasionally found among IPCC affiliated or sympathetic scientists, as in the following e-mail message circulated at a U.S. climate research lab: "Ironically, the people who are conducting these attacks and accuse the scientific community of belonging to some sort of 'global conspiracy' are themselves part of a conspiracy, funded by the oil and coal industry, to discredit any scientist or piece of evidence that supports the hypothesis that humans are causing a detectable change to global climate." Conspiracy theorizing on the IPCC side of the issue is perhaps most obvious in the discourses of environmental activists. Greenpeace, for example, suggests that the critics actually believe that scientific evidence proves the reality of dangerous human-induced climate change. "Greenpeace believes that this is a

deliberate and blunt attempt to distort the nature of the climate threat. The evident intention is to force policy-makers to ignore the science, and disagree over CO₂ emissions reductions" (Greenpeace 1996; emphasis added). By contrast, my research suggests that critics of the theory of human-induced climate change sincerely believe that there is no demonstrated scientific basis for current concern about the issue.

Finally, with regard to several of the assertions of conspiracy by scientists on both sides discussed above, including that by Singer concerning other political agendas at work (since environmentalists undeniably would like to see pollution reduced, regardless of global warming) and the one immediately above by Greenpeace (given my earlier description of industry creation of green sounding "front groups" and questionable ad campaigns),⁵ one might mark Hofstadter's words that

paranoid reasoning begins with certain defensible judgments, and nothing entirely prevents a sound program or a sound issue from being advocated in the paranoid style. . . . What distinguishes the paranoid style is not, then, the absence of verifiable facts (though it is occasionally true that in his extravagant passion for facts the paranoid occasionally manufactures them), but rather the curious leap in imagination that is always made at some critical point in the recital of events. (1967, 37)

Ellsaesser's argument that IPCC scientists and supporters orchestrated this controversy to divert attention from uncertainties in the science is the mirror opposite of that found on the other side of the controversy; here accusations suggest that the GCC and Seitz et al. raised this entire controversy to "divert attention" from the strong conclusion of this new report that the evidence suggests that humans are changing the climate. These arguments by both sides can be read as conspiratorial, with their attributions of deliberate plotting for political gain on the part of their opponents. From another vantage point, these arguments are little more than legitimate political differences expressed through conspiratorial rhetoric—easy point-scoring, based on apparently heartfelt disagreement and dislike.

Whether meant seriously or simply used as means of achieving political gain, attributions of conspiracy are unhelpful for constructive discussion about the state of scientific knowledge about climate change and about possible "no-regrets" policy action (policy responses related to energy consumption that have environmental and economic benefits aside from reducing the potential risk of global warming). The vilification inherent in such attributions of sinister motives rarely resonates with the self-perceptions and intents of the accused, and hence further polarizes the groups involved in this already frequently antagonistic debate. One lesson to draw from this case study is the care with

which charges of conspiracy must be received and their factual basis examined for assumptions of sinister plotting applied to a reality of much more complexity and much less coherence. Charges and suggestions of conspiracy spread with little resistance among sympathetic audiences in a social and scientific context characterized by uncertainty, fragmentation, complexity, and competing interests; who was who, and who said or provoked what and with what authority and expertise, is not always easily established. As a result, most controversies around human-induced climate change—including this one concerning Chapter 8—remain unresolved, competing claims rarely verified but allowed to fester, with the general effect of reinforcing preconceived suspicions and positions.

The influence of the conflicting claims around this and other controversies concerning human-induced climate change is not easily measured. The GCC originally called for an investigation into the propriety of the revisions, as did Singer in a 9 August letter addressed to all recipients of Santer's informal e-mail messages concerning the controversy. Dana Rohrabacher, Republican chairman of the House Subcommittee on Energy and Environment, initiated an investigation into the extent to which U.S. scientists within the Department of Energy have spent time and resources on the IPCC process. The controversy fit his view of climate change research as a "liberal claptrap" and his anti-regulatory values. However, none of the above were followed up by significant action, and the charges against the IPCC did not surface significantly outside of the U.S., where the report heightened concern about climate change. Several Global Climate Coalition member companies, including British Petroleum left the GCC immediately after the Chapter 8 controversy, apparently because they disagreed with the GCC actions surrounding it. But the GCC claims that other industries joined as a result, so the net effect in terms of the organization, force, and strategies of fossil-fuel-industry lobbying efforts is unclear.

The charges did not appear to influence the Clinton administration, at least not in an immediately obvious way. The Clinton administration strongly supported the 1995 IPCC report and now considers global warming "no longer a theory" but a "fact" (U.S. Government 1997), a sufficient basis for policy action. However, Clinton's Climate Action Plan presented at the FCCC meeting in Kyoto in December 1997 was sharply criticized by European leaders as too weak (Stevens 1997), and the relative modesty of the U.S. commitment to reduce its greenhouse-gas emissions are often attributed to the existence of strong industry pressure in the U.S. against such reductions.⁶

As we have seen, conspiracy theories in this study span a full range of uses. Moving away from the political fringes of the U.S. political landscape occupied by groups such as the followers of Lyndon Larouche, conspiracy theories amount to little more than rhetorical means by which to cast suspicion on scientific and political opponents; they constitute one tactic among many at play

between conflicting interests and views concerning what kind of society and future is wanted, a simple strategy by which to advance interests, including environmentalism, unregulated capitalism, and partisan politics.

Notes

1. The charges were advanced during the height of the "ethnic cleansing" in former Yugoslavia, creating a discursive link between those atrocities and the revisions to Chapter 8.
2. E-mail communication with colleagues.
3. See Fuller (1988, 214) about the "spiral of silence" possible in "suboptimal essential consensus" when those who either disagree with a standing belief or have no strong views simply remain silent. The IPCC forms a suboptimal essential consensus insofar as each member of the group does not know the justificatory standards and current beliefs of all other experts and members of the IPCC.
4. Source: Hugh Ellsaesser, Nov. 1996 interview.
5. For example, the above mentioned ICE campaign included ads asserting that the theory of human-induced climate change was proven wrong by local instances of colder than usual temperatures. The big print of one ad read: "Some scientists say the earth's temperature is rising. They say that catastrophic global warming will take place in the years ahead; Yet, average temperature records show Minneapolis has actually gotten colder over the past 50 years. . . . Facts like these simply don't jibe with the theory that catastrophic global warming is taking place." Yet, as also explained by the above-mentioned *Science* article on the subject, scientific arguments supportive of the theory of human-induced climate change hold that temperatures in any one place have little bearing on the global-warming question, rises in the average global temperature believed likely to simultaneously involve local instances of average cooling.
6. Both President Clinton and Vice President Gore have modified their public statements of commitment to strong preventive action on the issue. See media analyses (Birnbaum 1997) of Al Gore's attempt to appease both environmentalists and industrialists around the Kyoto meeting and his more moderate statements at the Kyoto meeting compared with statements in his book (Gore 1992).

References

- Birnbaum, Jeffrey H. 1997. "A Cloud on Gore's Horizon." *Fortune*, 8 Dec., 122.
- Boehmer-Christiansen, Sonja. 1994. "A Scientific Agenda for Climate Policy?" *Nature* 372 (1 Dec.): 400–402.
- Brookes, Warren. 1989. "The Global Warming Panic." *Forbes*, 25 Dec., 96–102.
- Deal, Carl. 1992. *The Greenpeace Guide to Anti-Environmental Organizations*. Berkeley, Calif.: Odonian Press.
- Diamond, Sara. 1995. *Roads to Domination*. New York: Guilford Press.
- Ellsaesser, Hugh W. 1995. "An Open Letter to the IPCC." *21st Century*. Summer.
- Executive Intelligence Review. 1989. *The Greenhouse Effect Hoax*. Washington, D.C.: Executive Intelligence Review.

- Feder, Toni. 1996. "Attacks on IPCC Report Heat Controversy Over Global Warming." *Physics Today* (Aug.): 55–57.
- Fischer, Frank. 1991. "American Think Tanks: Policy Elites and the Politicization of Expertise." *Governance* 4(3): 332–53.
- Fleagle, Robert G. 1994. *Global Environmental Change*. Westport, Conn. Praeger.
- Fuller, Steve. 1988. *Social Epistemology*. Bloomington: Indiana University Press.
- Gelbspan, Ross. 1997. *The Heat Is On*. New York: Addison-Wesley.
- . 1995. "The Heat Is On." *Harper's*, Dec.
- Gore, Al. 1992. *Earth in the Balance*. Boston: Houghton Mifflin.
- Greenpeace. 1996. *The Scourge of the Skeptics: Industry Attacks on the IPCC Second Assessment Report*. E-mail, July 1996.
- Hasselmann, K., L. Bengtsson, U. Cubasch, G. C. Hegerl, H. Rodhe, E. Roeckner, H. V. Storch, and R. Voss. 1995. *Detection of Anthropogenic Climate Change Using a Fingerprint Method*. Vol. 168. Max Planck Institut für Meteorologie.
- Hays, Samuel, P. 1987. *Beauty, Health and Permanence*. Cambridge: Cambridge University Press.
- Hofstadter, Richard. 1967. *The Paranoid Style in American Politics and Other Essays*. New York: Random House.
- Houghton, J. T., L. G. Meira Filho, B. A. Collander, N. Haris, A. Kattenberg, and K. Maskell, eds. 1995. "Climate Change 1995." In *Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.
- Jastrow, Robert, William Nierenberg, and Frederick Seitz. 1990. *Scientific Perspectives on the Greenhouse Problem*. Ottawa, Ill.: Jameson Books.
- Jenkins, Holman, Jr. 1993. "Al Gore Leads a Purge." *Wall Street Journal*. 25 May.
- Lawson, Hilary. 1990. *The Greenhouse Conspiracy*. BBC, channel 4.
- Lehr, Jay H., ed. 1992. *Rational Readings on Environmental Concerns*. New York: Van Nostrand Reinhold.
- Masood, Ehsan. 1996. "Sparks Fly Over Climate Report." *Nature* 381 (20 June): 639.
- . 1995. "Climate Panel Confirms Human Role in Warming, Fights Off Oil States." *Nature* 378 (7): 524.
- . 1996. "Climate Debate Must not Overheat." *Nature* (13 June): 539.
- Ricci, David M. 1993. *The Transformation of American Politics: The New Washington and the Rise of Think Tanks*. New Haven, Conn.: Yale University Press.
- Rowlands, Ian. 1995. *The Politics of Global Atmospheric Change*. Manchester: Manchester University Press.
- Santer, Ben, et al. 1996. *Wall Street Journal*, 25 June.
- Science*. 1991. "Can PR Cool the Greenhouse?" *Science* 252 (28 June): 1784.
- Seitz, Frederick. 1997. Foreword. In *Hot Talk, Cold Science: Global Warming's Unfinished Debate*. Ed. S. Fred Singer. Oakland, Calif.: Independent Institute.
- . 1996. "Major Deception on Global Warming." *Wall Street Journal*. 12 June, editorial.
- . 1994. *On the Frontier: My Life in Science*. New York: American Institute of Physics.
- Singer, Fred S. 1992. "Warming Theories Need Warning Label." *The Bulletin of the Atomic Scientists* (June): 34–39.

- . 1991. "Global Warming: Do We Know Enough to Act?" In *Environmental Protection: Regulating for Results*. Ed. Kenneth Chilton and Melinda Warren. Boulder: Westview Press.
- Stevens, William K. 1997. "Talks on Global Warming End on a Pessimistic Note." *New York Times*, 1 Nov., A6.
- Stevens, William. 1996. "U.N. Climate Report Was Improperly Altered, Underplaying Uncertainties, Critics Say." *New York Times*, 17 June.
- Toumey, Christopher P. 1996. *Conjuring Science*. New Brunswick, N.J.: Rutgers University Press.
- U.S. Government. 1997. "Opening Remarks by the President and the Vice President at Discussion on Climate Change." 24 July.
- Wamsted, Dennis. 1996. "Doctoring the Documents?" *Energy Daily*, 22 May.
- Weiss, Peter. 1996. "Industry Group Assails Climate Chapter." *Science* 272 (21 June): 1734.
- World Climate Report. 1996. "Santer Springs Forth." *World Climate Report* 2(1): 1.