Global Warming Skepticism

While the awards were warmly applauded by environmentalists and especially by the Hollywood elite gathered at the awards ceremony, they made others cringe. In all honesty, though, there was artistic merit to the Gore film. It was, for instance, remarkably effective at humanizing Gore. As a politician he was long seen as wooden and almost sterile, unable to relate to the average person. This was reinforced by his two terms as Bill Clinton's vice president, a role that relegated him to the position of sidekick to the more affable — and important — president.

But *An Inconvenient Truth* challenged that perception. In personal vignettes scattered throughout the film, Al Gore is revealed as a person, a thoughtful and introspective man and an engaging speaker. When he tells the story of how his son was struck by a car, you can't help feeling sorry for him. His pain as a parent who nearly lost a child is obvious. On this basis, the Oscar may be justified.

It is not justified on the basis of the film's treatment of global warming. *An Inconvenient Truth* focuses exclusively on the so-called anthropogenic global-warming hypothesis that holds that the Earth is warming as a result of human activity. Moreover, as the film draws to its climax, it spends an increasing amount of effort describing frightening and fantastic catastrophes that it says are all but certain to result from global warming if nothing is done to reverse the trend.

While this is what endears *An Inconvenient Truth* to its core audience, it also changes the film from a supposedly objective documentary into little more than a sophisticated piece of propaganda. Al Gore may not mention the fact in his movie, but there is compelling evidence that the standard understanding of climate change is not as cut and dried, as settled, and as certain as some would have it.

Tilting at Windmills

It is worth noting that anyone even remotely skeptical of the standard model of global warming faces an almost insurmountably quixotic task. The view that human industrial and other economic activity is filling the air with carbon dioxide and causing the planet's temperature to rise is taught to nearly all the nation's children and has been for years. It continues to be taught all the way through high school and into college. It is endlessly reported in the newspapers and on the evening news broadcasts. It is repeated on the Weather Channel and is the subject of frequent cable television specials and documentaries. In all of this, it is only very rarely admitted that climate is an intensely complex subject in general, that climate-change science in particular is still in its infancy, and that, though many respected scientists believe the standard model to be correct, many other respected scientists disagree.

The task of the skeptic is made even more difficult by the burgeoning effort to silence dissent. There have been calls recently to equate global-warming skeptics with Holocaust deniers and to have them punished as the equivalent of war criminals. On September 19, 2006, in a post on the blog run by

environmentalist magazine *Grist*, David Roberts wrote: "When we've finally gotten serious about global warming, when the impacts are really hitting us and we're in a full worldwide scramble to minimize the damage, we should have war crimes trials for these b*****ds — some sort of climate Nuremberg."[1]

This type of rhetoric has not been confined to just one anti-heresy crusader. Columnist Vin Suprynowicz, editorial page editor for the *Las Vegas Review-Journal*, pointed out in a recent column that "the British foreign secretary 'has said that skeptics should be treated like advocates of Islamic terror and denied access to the media'" and that "European Union Environment Commissioner Stavros Dimas [told] the BBC that people should view the battle against climate change as a war — accepting the privations of a wartime economy and expecting millions of casualties."[2]

There are two points to consider about this effort to stifle debate about global warming. The first is that it may signal recognition among some global-warming proponents that skeptics have been increasingly successful at pointing out flaws in the accepted theory. If you are beginning to lose a debate, why not attack the character of the other side or even suggest that that side be outlawed? The second point to consider, and one related to the first, is that the proper response to calls to outlaw dissent is for the dissenters to very coolly and carefully persist in their arguments.

To choose silence as a result of intimidation is to acquiesce in the destruction of the natural right to free speech. In that spirit, it is time to consider some of the findings that, if they don't directly call the anthropogenic global-warming hypothesis into question, at the very least prove that the issue of climate change is not as simple as global-warming advocates like Al Gore would have people believe.

What Consensus?

One of the oft-repeated mantras of the global-warming crowd is that there is no longer any debate in the scientific community about the threat of global warming. That is just not true. While there are many scientists who firmly believe global warming is real and it is a threat, there are many other scientists who have serious reservations about that judgment.

One who sticks out in the debate on global warming is Danish statistician Bjorn Lomborg. Five years ago Lomborg, who views himself as an environmentalist, ignited a firestorm of controversy with his book *The Skeptical Environmentalist*. In it, Lomborg pointed out, as he has continued to explain since, "that actually a lot of the things we are doing to the environment are making it better." On global warming, he told the online site TechCentralStation: "Global warming is an important issue and one which we should address. But there is no sense of proportion either in environmental terms, or indeed in terms of the other issues facing the world."

According to Lomborg, millions die each year from lack of clean drinking water and proper sanitation and that indoor air pollution kills millions more, but that a warmer world poses no such threat. "One of the top climate change economists has modelled — and several papers that came out a couple of weeks ago essentially point out — that climate change will probably mean fewer deaths, not more deaths. It is estimated that climate change by about 2050 will mean about 800,000 fewer deaths."[3]

Another critic of the standard model of global warming is MIT professor of meteorology Richard S. Lindzen. A giant in climate science, Lindzen has published literally hundreds of scientific papers.[4] In an op-ed in the *Wall Street Journal* in 2001, writing about a National Academy of Sciences report on climate change in which he participated, Lindzen noted: "We are quite confident (1) that global mean temperature is about 0.5 degrees Celsius higher than it was a century ago; (2) that atmospheric levels

of carbon dioxide have risen over the past two centuries; and (3) that carbon dioxide is a greenhouse gas whose increase is likely to warm the earth (one of many, the most important being water vapor and clouds). But — and I cannot stress this enough — we are not in a position to confidently attribute past climate change to carbon dioxide or to forecast what the climate will be in the future. That is to say, contrary to media impressions, agreement with the three basic statements tells us almost nothing relevant to policy discussions."[5]

Lindzen again addressed the issue in the *Wall Street Journal* in 2006. Pointing out that everything from heat waves in Paris to heavy snows in Buffalo have been "blamed on people burning gasoline to fuel their cars, and coal and natural gas to heat, cool and electrify their homes," he noted:

> Ambiguous scientific statements about climate are hyped by those with a vested interest in alarm, thus raising the political stakes for policy makers who provide funds for more science research to feed more alarm to increase the political stakes. After all, who puts money into science — whether for AIDS, or space, or climate — where there is nothing really alarming? Indeed, the success of climate alarmism can be counted in the increased federal spending on climate research from a few hundred million dollars pre-1990 to $1.7 billion today.

He also noted in that same article that scientists dissenting from the orthodox view have been blackballed. "Scientists who dissent from the alarmism have seen their grant funds disappear, their work derided, and themselves libeled as industry stooges, scientific hacks or worse," he wrote. "Consequently, lies about climate change gain credence even when they fly in the face of the science that supposedly is their basis."

Lest this be derided as mere rhetoric, Lindzen names some of those whose careers have been disrupted in global warming related purges. "In Europe, Henk Tennekes was dismissed as research director of the Royal Dutch Meteorological Society after questioning the scientific underpinnings of global warming. Aksel Winn-Nielsen, former director of the U.N.'s World Meteorological Organization, was tarred by Bert Bolin, first head of the IPCC [Intergovernmental Panel on Climate Change], as a tool of the coal industry for questioning climate alarmism. Respected Italian professors Alfonso Sutera and Antonio Speranza disappeared from the debate in 1991, apparently losing climate-research funding for raising questions." According to Lindzen, the purge has been nearly complete: "Only the most senior scientists today can stand up against this alarmist gale, and defy the iron triangle of climate scientists, advocates and policymakers," he writes.[6]

One of the senior scientists who has remained a skeptic is noted hurricane expert William Gray, longtime head of the Tropical Meteorology Project at Colorado State University. Long recognized as the world's foremost expert on tropical cyclones (i.e., Atlantic hurricanes), Gray spoke to *Discover* magazine in 2005 about his work and about global warming. During the discussion, *Discover's* Kathy A. Svitil asked: "You don't believe global warming is causing climate change?" Gray responded:

> No. If it is, it is causing such a small part that it is negligible. I'm not disputing that there has been global warming. There was a lot of global warming in the 1930s and '40s, and then there was a slight global cooling from the middle '40s to the early '70s. And there has been warming since the middle '70s, especially in the last 10 years. But this is natural, due to ocean circulation changes and other factors. It is not human induced.

Moreover, Gray noted that many of his colleagues agree with him. "Nearly all of my colleagues who have been around 40 or 50 years are skeptical as hell about this whole global-warming thing," Gray told

Discover. "But no one asks us. If you don't know anything about how the atmosphere functions, you will of course say, 'Look, greenhouse gases are going up, the globe is warming, they must be related.' Well, just because there are two associations, changing with the same sign, doesn't mean that one is causing the other."[7]

Yet another highly qualified climate scientist who is a global warming skeptic is Dr. Timothy Ball of the Natural Resources Stewardship Project in Canada. Dr. Ball describes himself as "one of the first Canadian Ph.Ds. in Climatology" and points out that he served as a climatology professor at the University of Winnipeg. Ball is blunt in his assessment of global warming. "Believe it or not, Global Warming is not due to human contribution of Carbon Dioxide (CO_2)," he wrote in the *Canada Free Press* on February 5. "This in fact is the greatest deception in the history of science. We are wasting time, energy and trillions of dollars while creating unnecessary fear and consternation over an issue with no scientific justification." According to Ball, the changes in climate that have been observed so far have not deviated from what can be expected as part of natural variation. "These climate changes are well within natural variability and explained quite easily by changes in the sun. But there is nothing unusual going on."[8]

There are countless other scientists who take issue with the supposed consensus on global warming, but the one who makes some of the most trenchant observations on the controversy may be Phillip Stott, professor emeritus of biogeography at the University of London. In the online journal *Spiked* in 2004, Stott pointed out: "In any discussion of climate change, it is essential to distinguish between the complex science of climate and the myth — in the sense of Roland Barthes, or the 'hybrid', following Bruno Latour — of 'global warming.'" According to Stott, "The latter is a politico-pseudoscientific construct, developed since the late 1980s, in which the human emission of greenhouse gases, such as carbon dioxide and methane, is unquestioningly taken as the prime driver of a new and dramatic type of climate change."

For Stott, this pseudoscientific construct smacks of a new authoritarian religion "involving the use of what the physicist PH Borcherds has termed the 'hysterical subjunctive.' Indeed, for many, the myth has become an article of a secular faith that exhibits all the characteristics of a premodern religion, above all demanding sacrifice to the Earth." For those who adhere to this myth, climate change is a new and unsettling phenomenon, upsetting the applecart of the steady-state worldview that previously saw climate as stable over long periods of time.

Stott insightfully points out that it is the so-called global-warming deniers that therefore actually have a more realistic view of climate change, arguing as they do that the climate is, and has always been, a chaotic system marked by constant change. Says Stott:

> The global warming myth harks back to a lost Golden Age of climate stability, or, to employ a more modern term, climate "sustainability." Sadly, the idea of a sustainable climate is an oxymoron. The fact that we have rediscovered climate change at the turn of the Millennium tells us more about ourselves, and about our devices and desires, than about climate. Opponents of global warming are often snidely referred to as 'climate change deniers'; precisely the opposite is true. Those who question the myth of global warming are passionate believers in climate change — it is the global warmers who deny that climate change is the norm.[9]

Counter Indications

Part of the reason why these and many other scientists are skeptical of the claims made by Al Gore and other proponents of the standard model of global warming is that some observed phenomena are not accounted for by that model. Another reason is that the standard model does not account for other causes of climate change.

One of the claims made to support the idea that humans are causing global warming is that glaciers are disappearing across the globe. That was reported by *National Geographic* in 2002: "New surveys from satellites and aircraft document an alarming acceleration in the melting of glaciers around the world."[10] It is, of course, true that glaciers are melting. It is also true that some glaciers are not melting. One of the places that melt water from glaciers has caused the greatest concern is Greenland. The prospect that Greenland might lose its huge ice sheet led Al Gore in *An Inconvenient Truth* to suggest that, should that happen, sea levels would rise by 20 feet. That would truly be catastrophic, but is Greenland really about to lose all its ice?

Maybe. But maybe not. A recently published study found that two significant glaciers in Greenland that had recently experienced an accelerated loss of mass have now returned to their previous rate of discharge. The study was led by Ian Howat of the University of Colorado's Snow and Ice Data Center and the University of Washington's Applied Physics Laboratory. According to Howat, the study indicates that it is inadvisable to base predictions of glacial melting and sea level increases on observations spanning just a few years. "Our main point is that the behavior of these glaciers can change a lot from year to year, so we can't assume to know the future behavior from short records of recent changes," he said. "Future warming may lead to rapid pulses of retreat and increased discharge rather than a long, steady drawdown."[11]

One of the glaciers whose disappearance has been frequently cited as evidence that global warming is fast changing the planet is that which once graced the majestic peak of Africa's Mt. Kilimanjaro. "If current climatic conditions persist, the legendary glaciers, icing the peaks of Africa's highest summit for nearly 12,000 years, could be gone entirely by 2020," *National Geographic* reported in 2003.[12] But despite the reports that the snows of Kilimanjaro are melting because of global warming, there are other possible causes.

One of these comes from a study led by Thomas Mölg of the Tropical Glaciology Group, Department of Geography at the University of Innsbruck in Austria. In a paper entitled "Solar-radiation-maintained glacier recession on Kilimanjaro drawn from combined ice-radiation geometry modeling," published in the *Journal of Geophysical Research* in 2003, Mölg and his fellow researchers argued that their study "qualitatively demonstrates that solar radiation is the main climatic parameter maintaining modern glacier recession on Kilimanjaro summit, but also suggests that retreat on the inner ice cap margin might have been supported by a secondary energy source."[13] In other words, the sun is the main cause of melting on Kilimanjaro.

As for a secondary cause, some have suggested deforestation at the mountain's lower elevations as a significant factor. In a news item in *Nature* magazine on November 24, 2003, reporter Betsy Mason wrote: "Although it's tempting to blame the (Kilimanjaro) ice loss on global warming, researchers think that deforestation of the mountain's foothills is the more likely culprit."[14] Such deforestation, it has been alleged, changed the moisture content of the local atmosphere, upsetting previously existing conditions suitable for glaciation. There also may have been other regional climactic factors that started the loss of

Kilimanjaro's glaciers. George Kerevan, the associate editor of *The Scotsman*, a Scottish newspaper, suggested what some of those other factors might be. According to Kerevan:

> Records show that some time in the middle of the 19th century, the equatorial regions of the planet grew much drier. Possibly this had to do with deep-seated and complex variations in global wind and tide patterns. Some historians also suggest that European colonial expansion in Africa was aided by the ensuing famines that afflicted native populations. Environmentally, the upshot was less moisture in the air. But moisture is precisely what you need to freeze and add to your mountaintop glacier.
>
> In East Africa, recent research has found that after about 1880, local lakes were drying up quickly as a result of these changes. Such lake evaporation decreases the amount of precipitation and cloudiness around Kilimanjaro. This produced a double whammy. Less precipitation robs the glacier of the material it needs to grow. Worse, less cloud coverage lets more sunlight filter through. The increase in sunlight (not temperature) provides more energy for evaporation of the glacier — something that started well over a century ago.[15]

Does all of this mean that global warming has nothing to do with melting glaciers? In all truth, no. But it does serve to point out that opinions vary considerably and that it is inadvisable to base global-warming claims on the status of glaciers alone.

There are other counter indications worth noting as well. One is that the oceans have not been heating up and have, in fact, undergone periods of recent cooling. That cooling was discussed in a paper by a team of researchers led by John P. Lyman of the National Oceanic and Atmospheric Administration that was published in Geophysical Research Letters in September 2006. In their paper, the researchers noted that there was a cooling anomaly detected in the oceans of the world that lasted from 1980 to 1983 and that appears to be occurring again.

"We have detected a new cooling event that began in 2003 and is comparable in magnitude to the one in the early 1980s," they wrote. Moreover, the cooling is not just consigned to certain ocean strata, but occurs at all depths. According to the paper, "The cooling signal is distributed over the water column with most depths experiencing some cooling. A small amount of cooling is observed at the surface, although much less than the cooling at depth…. The maximum cooling occurs at about 400 m and substantial cooling is still observed at 750 m."

If the ocean is cooling, where did the heat go? According to the researchers, it was lost to space. They point out that "previous work suggests that the scale of the heat loss is too large to be stored in any single component of the Earth's climate system." They conclude that the heat was probably radiated out into space. "These findings suggest that the observed decrease in upper ocean heat content from 2003 to 2005 could be the result of a net loss of heat from the Earth to space."[16] If so, then the Earth has lost heat during the same time it was supposed to have been warming according to the anthropogenic warming model.

What else? A researcher with Ohio State University's Byrd Polar Research Center recently reported to the annual meeting of the American Association for the Advancement of Science (AAAS) that temperatures in the Antarctic have not been rising as predicted. "It's hard to see a global warming signal from the mainland of Antarctica right now," professor David Bromwich told the AAAS meeting according to the online science news site PhysOrg.com. "Part of the reason is that there is a lot of variability there. It's very hard in these polar latitudes to demonstrate a global warming signal. This is

in marked contrast to the northern tip of the Antarctic Peninsula that is one of the most rapidly warming parts of the Earth."

Even so, Bromwich emphasized it was hard to find evidence of man-made global warming in Antarctica as a whole. "The best we can say right now is that the climate models are somewhat inconsistent with the evidence that we have for the last 50 years from continental Antarctica," Bromwich said. "We're looking for a small signal that represents the impact of human activity and it is hard to find it at the moment."[17] This does not invalidate the standard theory of global warming, as Bromwich made clear to the AAAS audience. But, once again, it clearly illustrates that the science of global warming is anything but settled.

Alternative Theories

Some researchers have suggested alternative explanations for how the planet may warm. The most obvious of these is that the sun's energy output varies slightly over time and that it has lately been in a very active phase, causing the Earth to receive more energy and, therefore, to warm.

Variability in solar radiation has been shown to have had an effect on the climate in the past. In 1999, a paper in the journal *Quaternary Science Reviews* pointed this out. The authors of the paper, a team of Dutch and Russian scientists, examined the relative levels of a carbon isotope that is more commonly created when the Sun is quiet and solar radiation is at a minimum. They found that substantial increases in the carbon isotope coincided with global cooling events at about 850 B.C. and 1600 A.D. The latter date corresponds to the so-called Little Ice Age.

According to the researchers, "It is well documented that periods of decreased solar activity … often coincide with climatic change. The best-known example is the Maunder Minimum (1645-1715), a solar event that is coinciding with one of the coldest phases of the Little Ice Age.… According to Lean et al. (1992) the sun during the Maunder Minimum was 0.25% less bright than it was during the solar minimum of 1985-1986. Climate model experiments indicate that such a decrease in solar irradiance is capable of causing a global cooling of about 0.5°C."[18]

Based on the findings of their research, the Dutch and Russian scientists concluded that climate reacts strongly to small changes in solar radiation. "Accepting the idea of solar forcing of Holocene and Glacial climatic shifts has major implications for our view of present and future climate," they wrote. "It implies that the climate system is far more sensitive to small variations in solar activity than generally believed. For instance, it could mean that the global temperature fluctuations during the last decades are partly, or completely explained by small changes in solar radiation."[19]

Some scientists have claimed, in fact, that the Sun has been more active in recent years. In 2003, another team of European researchers led by Ilya Usoskin of the University of Oulu in Finland published a paper in the journal *Physical Review Letters* documenting an increase in solar activity based on sunspot observations. "The most striking feature of the complete SN [sunspot number] profile is the uniqueness of the steep rise of sunspot activity during the first half of the 20th century. Never during the 11 centuries prior to that was the Sun nearly as active."[20] They pointed out that periods of high solar activity corresponded with periods of warmth on Earth and that periods of low solar activity likewise correspond with periods of wet, cool weather. The researchers concluded that the "current high level of solar activity may also have an impact on the terrestrial climate. We note a general similarity between our long-term SN reconstruction and different reconstructions of temperature: both

SN and temperature show a slow decreasing trend just prior to 1900, followed by a steep rise."[21]

A U.S.-based team of scientists reached a similar conclusion in a study published in *Physical Review E*, a journal of the American Physical Society, in February 2004. Led by physicist Nicola Scafetta of Duke University, the researchers concluded that their study "suggests that the increase of the earth's temperature during the last 80 years is partially related to the increase in solar activity." They continued:

> While anthropogenic added greenhouse gases may also have partially contributed to the increase of the earth temperature during the last century, we observe that natural phenomena like eruption of volcanoes and several side effects of the solar variability can contribute to climate change. For example, the increased solar activity may favor an increase of the water vapor concentration in the air, which is known as one of the strongest greenhouse gases, as well as the melting of snow and ice, which will lower the reflection of the earth and increase the absorption of solar energy. The increase of the concentration of atmospheric CO_2 and other greenhouse gases may also be partially due to the fact that the warming of the oceans may reduce the uptake of these gases from the air.[22]

A more unique theory as to the mechanisms that may trigger climate change was proposed recently by Henrik Svensmark of the Danish Space Research Institute and his collaborators. Since the mid-1990s Svensmark has been doggedly researching[23] the correlation between galactic cosmic rays and climate, despite ridicule from the UN's IPCC that his work is "scientifically extremely naive and irresponsible."[24] Quite the opposite, in fact, is true, as Svensmark is a legitimate scientist who publishes his work in peer-reviewed journals. His results are controversial — but that alone does not disqualify them; important scientific work has often been controversial.

In a highly watered down nutshell, what Svensmark says is that galactic cosmic rays — radiation originating outside the solar system — seed cloud formation and that when solar activity is high, less cosmic radiation reaches the Earth, reducing cloud cover and allowing more of the sun's energy to penetrate and warm the atmosphere. For this to hold, however, Svensmark would need to demonstrate a mechanism whereby cosmic radiation can initiate cloud formation.

In a paper published in the journal Astronomy & Geophysics, Svensmark claims to have done just that. According to the paper's abstract, "A recent experiment has shown how electrons liberated by cosmic rays assist in making aerosols, the building blocks of cloud condensation nuclei, while anomalous climatic trends in Antarctica confirm the role of clouds in helping to drive climate change. Variations in the cosmic-ray influx due to solar magnetic activity account well for climatic fluctuations on decadal, centennial and millennial timescales. Over longer intervals, the changing galactic environment of the solar system has had dramatic consequences, including Snowball Earth episodes."[25]

Theories and Consequences

The foregoing material is not intended to prove or disprove any of the competing theories on climate change. It is only intended to serve as a corrective to the notion that there is no longer any serious debate about global warming. Clearly, the debate still rages.

For many policymakers, though, the debate is over and it is now time to take legislative action. That, for instance, is the opinion of Republican Senator Olympia Snowe of Maine. "We have reached a scientific

critical mass, the question now is how do we reach a political critical mass," Snowe told a World Bank-sponsored conference in February.[26] In Washington, according to a Reuters report at tech Website ZDNet.com, Speaker of the House Nancy Pelosi is hoping to see "a 'substantial package' of global warming legislation by June 1."[27]

Such legislation, if signed into law, would undoubtedly contain severe taxes or outright restrictions on carbon emissions that would almost certainly cause economic disruption, at minimum, in important manufacturing industries. Probably, that disruption would ripple through the economy as a whole.

The real inconvenient truth about global warming is that the science is not yet settled and that policies are likely to be put in place prematurely as a result. And when the bureaucrats pat themselves on the back for a job well done in saving the planet from global warming, in the real world the average Joe will be stuck wondering what happened to his job and worrying about how he is going to scrape together the cash to pay his increasingly expensive bills.

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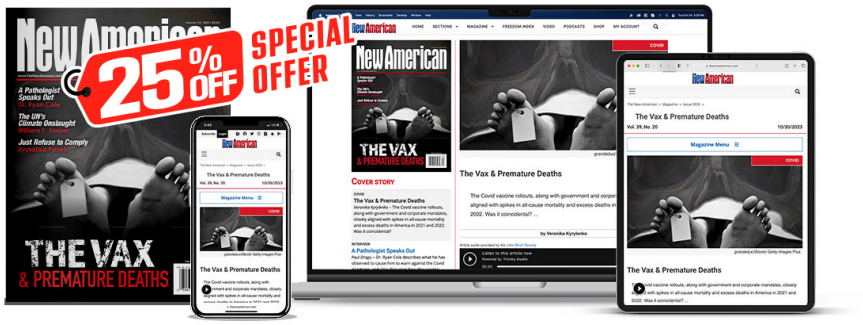

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