

Rachel's Environment & Health News

#467 - 'Ignorance is Strength'

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Scientists don't like to think of science as a popularity contest of ideas. But that's really what it is.[1] The only people who get to vote in the contest are specialists in a particular field of inquiry, but scientists do "vote" for or against particular ideas by agreeing or disagreeing with them. An idea is considered "true" when the great majority of scientists say they agree with it. In other words, in science, truth shifts as scientists change their minds. This means that scientific "truth" has a "political" component because scientists may vote for or against an idea based on something besides their own observations of nature. For example, WHERE an idea is published may be nearly as persuasive as the idea itself. For example, in the field of geology, an idea published in the JOURNAL OF GEOPHYSICAL RESEARCH (JGR) becomes important simply because it has appeared in JGR.

The global warming debate is no different from other scientific ideas. For about 100 years, scientists have been saying that an increase in the carbon dioxide content of the atmosphere (from burning coal and oil) will, sooner or later, heat up the planet. Carbon dioxide allows sunlight to strike the earth, but traps some of the resulting heat. This is not disputed. Sooner or later, this additional heat will warm the planet, just the way a glass roof warms a greenhouse. Very few scientists dispute this prediction.

Furthermore, there is no doubt that the carbon dioxide content of the atmosphere has increased 30% during the past century --an increase caused by humans burning coal and oil. The increase has been carefully measured, and is not in dispute.

For the past 20 years, scientists have been looking for a telltale "signal" that the increasing carbon dioxide content of the atmosphere is actually producing a warming effect planet-wide. The problem is that the temperature varies naturally (daily and seasonal changes, plus larger fluctuations from decade to decade and from century to century, caused by unknown forces), so scientists are trying to "see" the global warming "signal" against the "background noise" of natural variations.

In June of 1988 --a record-breaking hot summer in the U.S. --Dr. James Hansen of the National Aeronautics and Space Administration (NASA) testified before Congress, saying he believed he was seeing the signal of global warming.[2] Hansen thus cast his vote "for" global warming. Many of his colleagues scoffed and said no one could yet see the signal. A scientist with unpopular ideas can become a pariah, and Dr. Hansen received some of that treatment. Dr. Hansen's experience may well have silenced other scientists who agreed with him.

Now more and more scientists are casting their vote on the side that says, "We are seeing the signal." Dr. Hansen is no longer alone. There is evidence that glaciers are melting, oceans are warming, and the seas are rising (chiefly because water expands as it warms).

In October, Thomas Karl of the National Oceanic and Atmospheric Administration published a paper in NATURE showing that extremes of climate in the U.S. have increased since 1976, compared to the previous 65 years, consistent with the theory of global warming.[3] It was an important piece of evidence indicating that the signal is now becoming visible amidst the noise.

Even more importantly, in spring of 1996, a new report will be published by the Intergovernmental Panel on Climate Change (IPCC), saying that global warming is occurring and that humans are at least partially responsible. In other words, the IPCC -- some 200 of the world's best-known climate specialists --has moved over to Dr. Hansen's side in the debate. After the IPCC report is published, only a handful of climate specialists will remain on the "unconvinced" side.

In a front page story September 10, the NEW YORK TIMES announced the new IPCC report this way: "In an important shift of scientific judgment, experts advising the world's governments on

climate change are saying for the first time that human activity is a likely cause of the warming of the global atmosphere." [4] The TIMES went on to list the effects of global warming, as described by the IPCC: "...many adverse effects. These include more extreme weather [heat, cold, floods, droughts] and possibly more intense tropical storms [hurricanes, typhoons], destruction of some communities by rising seas, damage to and loss of natural ecosystems that cannot adapt rapidly enough [for example, coral reefs; mangrove thickets; coastal wetlands; northern forests], diminished agricultural output in some places [the interior of continents, for example], and an increase in some tropical diseases [malaria; yellow fever; dengue fever; schistosomiasis; see REHW #466]."

A week later the TIMES followed up with a second front-page story, which began: "The earth has entered a period of climatic change that is likely to cause widespread economic, social and environmental dislocation over the next century if emissions of heat-trapping gases are not reduced, according to experts advising the world's governments." [5]

Reducing heat-trapping gases requires a shift away from coal and oil to solar energy. (Using solar energy merely means extracting useful work from the stream of sunlight that already strikes the planet; no additional heat is created or released, thus avoiding the threat of global warming.)

So the scientific debate is coming to an end as the world's experts begin to agree, "We are seeing the signal." However, scientific consensus alone will not avert the widespread dislocation that the IPCC says global warming is likely to bring. To avert the suffering, the scientific consensus must be translated into public and private programs to move away from coal and oil toward solar energy (probably employing hydrogen for storage). The needed technologies already exist (see REHW #252). The determination to adopt them is what's missing.

So now we enter a period of major political struggle. On one side are the scientists trying to get the word out to the public that burning coal and oil is likely to cause major disruptions of life as we know it --breaking apart the Creator's handiwork in ways we only dimly understand. On the other hand, the coal and oil companies will be trying to keep doubt alive, saying we don't really know whether global warming is worth avoiding.

The coal and oil companies are among the most powerful corporations on the planet. Many of them have annual sales larger than the annual value of the total goods and services produced by many countries. For example, Exxon (\$103.5 billion) is larger than Finland (\$93.9 billion) and larger than Israel (\$69.8 billion). Mobil Oil (\$57.4 billion) is larger than Ireland (\$43.3 billion) and larger than New Zealand (\$41.3 billion). Chevron Oil (\$37.5 billion) is larger than Algeria (\$35.7 billion), larger than Hungary (\$35.2 billion), larger than Egypt (\$33.6 billion), larger than Morocco (\$28.4 billion), and larger than Peru (\$22.1 billion).[6]

While a few hundred scientists write about the dangers of global warming in journals with names like NATURE, and SCIENCE and THE LANCET --Mobil Oil places ads on the op-ed page of the NEW YORK TIMES simultaneously lobbying both the educated elite and, at the other end of the scale, the Congress, urging 'no action' on global warming. For example on February 25, 1993, a Mobil ad acknowledged that "if present trends continue, carbon dioxide levels will double over the next 50 to 100 years." This is the IPCC's position. But the ad goes on to say this may not have any effect whatsoever, or it may actually be beneficial.

As its source of scientific opinion, the Mobil ad quotes a book published by the Pacific Research Institute, a San Francisco think tank which describes itself (though not in the Mobil ad) as "a non-profit education organization that aims to foster individual liberty through free markets, protection of private property rights,

and advocacy of limited government." The Mobil ad quotes the book saying, "...the highly touted greenhouse disaster is most improbable." Mobil then quotes S. Fred Singer. For years, Singer was a professor at the University of Virginia where he was funded by energy companies to pump out glossy pamphlets pooh-poohing climate change. (See REHW 355.) Singer hasn't published original research on climate change in 20 years, and is now an "independent" consultant, who spends his time writing letters to the editor, and testifying before Congress, claiming that ozone-depletion and global warming aren't real problems. In the Mobil ad, Singer is quoted saying "the net impact [of a modest warming] may well be beneficial." The Mobil ad sums up, "It would seem that the [global warming] phenomenon - -and its impact on the economy --are important enough to warrant considerably more research before proposing actions we may later regret. Perhaps the sky isn't falling, after all."

This kind of corporate disinformation has its intended effect. Representative Dana Rohrabacher (Republican of California), who heads the House subcommittee on energy and environment, said recently, "Nowhere is scientific nonsense more evident than in global warming programs that are sprinkled throughout the current year budget." But Americans need not worry, he assured us, because "there's a new gang in town... Our '96 budget does not operate on the assumption that global warming is a proven phenomenon. In fact, it is assumed at best to be unproven and at worst to be liberal claptrap, trendy, but soon to go out of style in our Newt Congress." [7] At least 10% of Mr. Rohrabacher's \$180,000 re-election campaign in 1994 was funded by energy and transportation corporations. [8]

Mr. Rohrabacher's words have been backed up by deeds in this Congress: On October 12, the House approved a \$21.5 billion science bill, which explicitly prohibits U.S. Environmental Protection Agency from conducting ANY research on global warming.

Science is a popularity contest among competing ideas. But even when scientists reach consensus, their truth may have no effect on public policy. In opposition to scientific consensus, a handful of disgruntled critics, their tiny voices amplified by a billion-dollar corporation, can make endless arguments that war is peace, freedom is slavery, ignorance is strength, and global warming may be good for you.

--Peter Montague

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[1] Thomas S. Kuhn, THE STRUCTURE OF SCIENTIFIC REVOLUTIONS Second Edition, Enlarged (Chicago: University of Chicago Press, 1970). Not only is science a popularity contest of ideas, but some scientists hold onto ideas long after the available data have shown them to be untenable. In fact, says Kuhn, the way scientific ideas change completely is not by all scientists changing their minds; it's that older scientists who retain discredited ideas die, and then the only people left are those holding the newer ideas.

[2] "Greenhouse Warming Said to Begin," FACTS ON FILE WORLD NEWS DIGEST July 1, 1988, pg. 476A2.

[3] Thomas R. Karl and others, "Trends in high-frequency climate variability in the twentieth century," NATURE Vol. 377 No. 6546 (September 21, 1995), pg. 217.

[4] William K. Stevens, "Experts Confirm Human Role in Global Warming," NEW YORK TIMES September 10, 1995, pgs. 1, 8.

[5] William K. Stevens, "Scientists Say Earth's Warming Could Set Off Wide Disruptions," NEW YORK TIMES September 18, 1995,

pgs. 1, 8.

[6] Corporation data from "The Fortune 500 Largest U.S. Industrial Corporations," FORTUNE April 19, 1993. Country data from The World Bank, WORLD DEVELOPMENT REPORT, 1994 (New York: Oxford University Press, 1994). Thanks to Les Leopold at the Labor Institute in NYC for these data.

[7] Michael Hershaft, "House bill cuts spending on science by \$3 billion; During debate, Rohrabacher blasts global warming theory," ORANGE COUNTY REGISTER Oct. 13, 1995, p. C5. Thanks to Michael Zimmerman, Office of the Dean, College of Arts and Letters, University of Wisconsin Oshkosh, Oshkosh, Wis. 54901, for the whole Rohrabacher quotation.

[8] Larry Makinson, THE PRICE OF ADMISSION; CAMPAIGN SPENDING IN THE 1994 ELECTIONS (Washington, D.C. Center for Responsive Politics, 1995), pg. 61.

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