Science is a process that allows people to reach agreement about the nature of reality, no matter what culture they come from. If I describe how to make a thermometer and you follow the recipe, you and I will end up agreeing that, at sea level, water boils at 212 degrees Fahrenheit (100 degrees Celsius). Not all of reality is accessible to the scientific method but for those parts that are, science allows us to reach agreement. Thus the scientific method has enormous power for getting people together.

We read about 30 scientific and medical journals on a regular basis. In recent years, a remarkable quantity of bad news for humans and the environment has appeared in these and other peer-reviewed journals. Because these results were gathered by the scientific method, they are pretty convincing. On the basis of this work, it seems safe to say our civilization is pulling the rug out from under itself. Business as usual is relentlessly destroying the community of creatures and ecosystems upon which our survival depends. On the other hand, business-as-usual is enormously profitable for a small group of people, who fiercely defend what they are doing and who now sponsor an entire industry dedicated to denying that trouble lies ahead.

According to the NEW YORK TIMES, the business community has developed a specific wish list for the new Congress: they want less environmental regulation, and they want to curb the rights of citizens to bring lawsuits against corporations for harms.[1]

It seems apparent that the long-term strategy for achieving both goals is to diminish the power of science. The aim seems to be to bring science out of the laboratory and turn it into more of a street fight where the most powerful and ruthless adversary has the best chance of winning. By this means, it seems apparent, corporations intend to undercut the credibility (and therefore the power) of scientific findings.

In these two arenas --the courts, and government regulations -- contradictory tactics are being pursued.

In the courts, corporations (and the representatives they paid to install in Congress) are trying to limit scientific evidence by excluding views they claim are outside the mainstream. For example, the Republican Party's 1996 Platform contains a section called "Restoring Justice to the Courts," which proposes to "eliminate the use of "junk" science... by requiring courts to verify that the science of those called as expert witnesses is reasonably acceptable within the scientific community..."[2] In other words, testimony by expert witnesses would be disallowed unless it represented the views of the scientific mainstream. Scientists with new research findings and new information about cause-and-effect would be effectively excluded from the courts until their work had been absorbed into the mainstream of science --a process that might take years or even decades.

On the other hand, in the arena of environmental regulation, the same corporations (and their same representatives in Congress) are working hard to undermine the credibility of mainstream scientific views. In this arena, their goal is to boost the standing and credibility of the scientific fringe --the handful of dissidents who say that global warming is not harmful and may even be beneficial; that the ozone hole is natural or has perhaps been faked; and that dioxin is not nearly as poisonous as most scientists say it is --and it may even be good for you.

The thread that ties these contradictory views together is the goal of making science into something that confuses people and thus drives people apart, instead of something that helps people reach agreement about the nature of reality.

The effort to make science more political has been gathering momentum since the election of 1994 when self-styled "conservatives" gained control of Congress. During 1995, the House Subcommittee on Energy and Environment held three public hearings, one devoted to depletion of the ozone layer, one to global warming, and one to the powerfully poisonous industrial byproduct, dioxin. According to a recent analysis of the hearing transcripts, a common theme emerged from the three hearings:

(1) Research funded by the federal government is not sound science because scientists have an economic incentive to exaggerate the importance of their work ("to shill for the apocalypse," as one witness, Patrick Michaels, phrased it);

(2) Consensus science derived from peer review is not sound science because it represents a conspiracy by the scientific establishment to suppress dissenting views;

(3) Science which contains uncertainties in its conclusions is not sound science;

(4) Science that is not strictly empirical (meaning based on observations and not based on theories or models derived from observations) is not sound science.[3]

Clearly, if these definitions of "sound science" were accepted, most environmental science could not be considered sound, and nearly all studies linking human health to environmental degradation would be declared unsound. There is --and always will be --uncertainty in our understanding of complex domains, such as the environment and human health. Models are used in all complex scientific studies--purely "empirical" studies, without reference to theoretical constructs, are rare. Peer review is how scientists find errors; without it, science could not proceed. And much environmental science must be funded by public agencies because the private sector has no interest in funding it (and, indeed, often has a strong interest in seeing that it is NOT funded).

The effort to politicize science is proceeding outside the halls of Congress as well. Individual scientists, science writers, and scientific societies, are being intimidated by lawsuits and the threat of lawsuits. Examples:

Last August, Bette Hileman, a veteran science writer for CHEMICAL & ENGINEERING NEWS (C&EN), which is published by the American Chemical Society, wrote an opinion piece titled, "Global warming is target of disinformation campaign."[4] In it, Hileman described "a systematic campaign of disinformation" being conducted by a small group of scientists calling themselves the Global Climate Coalition (GCC) whose work is funded by coal, oil, utility, automobile, and chemical companies --the corporations whose profits might decline if Congress took global warming seriously.

A prominent member of GCC is Patrick Michaels, a faculty member at the University of Virginia and a fellow of the libertarian Cato Institute in Washington, D.C. Michaels often publishes commentaries covering everything from global warming to the free market and tax policy in the Reverend Sun Myung Moon's newspaper, the WASHINGTON TIMES.[5] In recent months, Michaels has been attacking the work of Benjamin D. Santer of Lawrence Livermore National Laboratory in California. Santer wrote the final draft of Chapter 8 of the latest report from the IPCC (United Nations Intergovernmental Panel on Climate Change). Chapter 8 concluded that "the balance of scientific evidence suggests a discernible human influence on global climate" --a conclusion fully supported by the IPCC but one that the coal and oil industries cannot leave unchallenged. Hileman evaluates Michael's attack on Santer's work, concluding, "...[E]ither Michaels does not understand Santer's work or he is deliberately distorting it." In the normal course of scientific debate, such criticisms are routine.

But no longer. Now S. Fred Singer --a former colleague of Michaels and a frequent author in the Reverend Moon's WASHINGTON TIMES --has threatened a lawsuit against the American Chemical Society: "The American Chemical Society may well be courting
one or more libel suits," Singer writes in the Moonie TIMES November 13, 1996, referring to Hileman's opinion piece.[6]

Singer is himself one of the fringe scientists who appeared as a witness (as did Michaels) at the 1995 Congressional ozone hearing described above. During the hearing, Singer tried to establish his ozone credentials by claiming to have published several peer-reviewed papers in which he presented his current theories about why the continent-sized ozone hole over the South Pole isn't a problem. However, when Congressional staff checked his references, they found that Singer's only published work on ozone depletion during the past 20 years had been one letter to the editor of SCIENCE magazine, and two articles in magazines that are not peer reviewed.[7] And of course his many articles in the Moonie WASHINGTON TIMES, where Singer is a regular blowhard columnist--the scientific equivalent of Rush Limbaugh. In fact, Limbaugh says he gets his information about the ozone depletion nonproblem from sources that have been traced back to Singer.[8]

The assault on science doesn't stop with threats aimed at intimidating journalists. The LOS ANGELES TIMES reported (Nov. 22, pg. A3) that U.S. Ecology --a corporation trying to build a huge nuclear waste dump at Ward Valley in the California desert--has threatened to sue two scientists who were commissioned by the U.S. Department of the Interior to study the safety of the proposed dump. In a letter to the two scientists, U.S. Ecology wrote, "Should you continue your participation in Interior's ill-advised project, please do so based on the knowledge that U.S. Ecology intends to seek compensation from any persons or entities whose conduct wrongfully injures its interests in this manner."

The two scientists--hydrogeologists Martin Mifflin and Scott W. Tyler--are employees of the Lawrence Livermore National Laboratory and are both members of the National Academy of Science's panel on Ward Valley.

The U.S. Ecology tactic is working. The two scientists have said they must stop work on Ward Valley until the federal government agrees to pay their legal costs, if they are sued. A Department of Interior official called U.S. Ecology's tactic "disgusting" but said under law the government cannot indemnify contractors, so the Ward Valley safety analysis has been put on hold.

The message is unmistakable: if science is standing in the way of corporate goals, then the methods of science will be discredited, modified or discarded, and individual science writers and scientists, and even scientific societies like the American Chemical Society, will be threatened and intimidated.

It seems clear that the root cause of these problems is a corporate form run amuck. This legal form, which limits corporate owners' liability yet provides full Constitutional protections for corporate actions, is providing legal cover and nearly unbounded resources for continuing unprincipled attacks on our most important social institutions, including courts, elections, and the scientific method itself. Now would be an appropriate time to examine the corporate form, and modify it as necessary, to make corporations once again subordinate to the will, and the general welfare, of the American people.

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)


[3] George E. Brown, Jr., report cited above in note 2, pg. 15; see also the rest of Brown's report, including the appendices.


Descriptor terms: science; courts; corporations; junk science; regulation; dioxin; global warming; ozone deplation; congress; lawsuits; slapp suits; bette hileman; patrick michaels; cato institute; sun myoung moon; banjamin santer; ipcc; fred singer; washington times; american chemical society; u.s. ecology; ward valley; radioactive waste; george e. brown, jr.;