

THE PERIL OF REPLACING SCIENCE WITH IDEOLOGY

Ideologies do not map the complete living processes of a World.

William Irwin Thompson

*When you were born, you cried and the world rejoiced,
Live your life so that when you die,
The world cries and you rejoice.*

White Elk, Native American

*When all the trees have been cut down,
When all the animals have been hunted,
When all the waters are polluted,
When all the air is unsafe to breathe,
Only then will you discover you cannot eat money.*

Cree Prophecy

Ideology — *shared ideas or beliefs which serve to justify and support the interests of a particular group or organizations* (<http://sociology.socialsciencedictionary.com/Sociology-Dictionary/IDEOLOGY>)

Ideology is not evidence based, as is science, but vigorously excludes contrary beliefs and even punishes persons espousing them. In the United States, the climate wars have reached the stage where denial of global warming has resulted in a tragic situation. For example, “for more than two decades, in their efforts to inform the public about climate change and its potentially disastrous consequences, scientists have run up against powerful vested interests who either deny that such change is occurring or, if it is, that human activity plays much if any role in it” (Mann 2012, p. xii).

The Commodity Trap

A *commodity* is an economic good or an article of commerce (*Merriam-Webster Dictionary* online). The view of Earth as a collection of components that can be turned into commodities for economic advantage masks the reality that the Biosphere is an interactive system with both living and non-living components that evolved over billions of years. Economists divide these components into renewable and non-renewable resources, both of which are essential to the human economy. Most important, the human economy has produced a large number of politically powerful groups that espouse the same ideology and can spend huge sums of money to defend their exploitation of the planet’s resources, even if the acquisition and use (e.g., fossil fuels) damage the Biosphere that functions as Earth’s life support system and the source of renewable resources. Humankind has known for centuries that damaging the environment (i.e., the Biosphere) can cause the collapse of civilizations (e.g., Diamond 2005), but society (or at least its elected officials) invariably chooses to protect special interests and ideologies rather than pay attention to a mass of scientific evidence. In fact, in the United States and some other developed countries, attempts are being made, often successfully, to limit the authority of regulatory agencies established to protect the environment. In a very real sense, the economic profits from damaging the Biosphere are used to suppress scientific evidence that confirms this damage. The preponderance of evidence demonstrates that anthropogenic greenhouse gases are changing the climate. In addition, strong evidence shows that the process of evolution has produced the great biodiversity of life observed over the ages. However, persistent attempts continue to offer alternative viewpoints to those based on scientific evidence (e.g., Kaufman 2012).

Anti Enlightenment

The Enlightenment, a philosophical movement of the 18th century, was based on a belief that reason, national discourse, and a reverence for knowledge were critical components of an enlightened society — hence, the name. Leaders of the forming nation, the United States, such as Thomas Jefferson and Benjamin Franklin were inspired by this concept, and its tenets are evident in both the US Constitution and the Declaration of Independence. Evidence,

not ideology, was a core of the Enlightenment. In the last part of the 20th century and the beginning of the 21st century, science in the United States was derided as being uncertain, disregarding that all life is characterized by uncertainty, including politics, sports, the stock market, the financial system, the prospects of a quality retirement, and job security and opportunity. In reality, science is a probabilistic determination based on evidence. Judgments are made on the basis of the preponderance of evidence, which is gathered in a process that uses peer-review before publication and confirmation by qualified scientists after publication. The word *theory*, much denigrated by critics of science, is not a guess but rather a carefully constructed testable hypothesis to be tested and either confirmed or rejected by robust evidence. If the preponderance of scientific evidence confirms the hypothesis, it is accepted by mainstream science, but any new contrary scientific evidence will result in reconsideration of the hypothesis.

Humanity has been well served by the research carried out by scientists. Longevity has been increased dramatically, and every day the technology based on scientific evidence is used and taken for granted. The quality control system developed for scientific information has worked remarkably well despite the vast increase in quantity as a consequence of the increased number of credentialed scientists. Qualified scientists are the best means of determining how the universal laws of physics, chemistry, and biology work, and, arguably, the only way since robust scientific evidence is essential. Scientists publish the results of their investigations without labeling them “good news” (i.e., news corporations and the general public like) or “bad news” (news regarded as a threat by corporations, ideologies, and religions). In ancient times, bearers of “bad news” were often punished (e.g., killed). In the 20th and 21st centuries, scientists produced evidence (e.g., global warming) that human activities were altering the global climate. As the evidence supporting this crisis increased, so did the assault on scientists (e.g., conspiracy, hoax) and their evidence (e.g., manipulated, uncertain). No “hoaxers” were identified; no contrary evidence was produced; and the crises worsened.

In the coming decades, science — and a respect for science — will prove crucial to confronting our greatest global challenges, whether that means reducing our carbon footprint to combat climate change, finding new treatments and new cures for diseases that ail us, or developing innovations that can lift hundreds of millions out of poverty. We cannot afford to ignore the power of science or the problems we will need it to solve. Nor can we afford to make decisions about our economy, and our future, without reason or sound evidence (vanden Heuvel 2012).

Where to Now?

How did humanity get trapped in this high risk situation? — by rejecting scientific evidence in favor of ideology. However, without scientific evidence, *Homo sapiens* is not likely to cope successfully with the new risks in a rapidly changing world. The common ideology is that technology will always provide more food for more people. Scientific evidence has shown that meeting continually increasing demands is not possible on a finite planet. “More” food and water for everybody is no longer achievable. Human population has dramatically outstripped biospheric resources. Regional examples of shortages have been occurring for centuries, but globalization has increased the risks for the entire planet. Approximately 1,000 tons of water are needed to produce a ton of grain. For example, net grain imports to the Arab Middle East have increased from a few million tons in 1960 to approximately 70 million tons in 2010 — a lot of water that is not included directly in the price of the grain (Rasmussen 2012).

Is US Science Education the Problem?

Replacing science with ideology is leaving human society in hazardous conditions. Undoing the harm done by the assault on science and scientists can be accelerated by increased environmental literacy, which must come from education and the clarification of the place of science in describing and understanding the physical world. Ideology based on special interests cannot be the foundation of dealing with the environment.

- (1) *Fifteen-year-olds in the U.S. ranked 25th among peers from 34 countries on a math test and scored in the middle in science and reading, while China's Shanghai topped the charts, raising concern that the U.S. isn't prepared to succeed in the global economy.*
- (2) *The Paris-based Organization for Economic Cooperation & Development, which represents 34 countries, today released the 2009 Program for International Student Assessment. For the first time, the test broke out the performance of China's Shanghai region, which topped every country in all academic categories. The U.S. government considers the test one of the most comprehensive measures of international achievement.*
- (3) *The average U.S. science score of 502 ranks 17th in the OECD nations, which were led by Finland, Japan and South Korea. Twelve scores were statistically better, the [U.S.]*

Education Department said. Shanghai students scored 575. The U.S., which scored 489 in 2006, ranked 21st among 30 OECD countries that year (Hechinger 2010).

I find it ironic that Hechinger's article appeared on December 7, the same day the devastating attack on Pearl Harbor occurred, which served as a wakeup call for the United States. Citizens made sacrifices at that time on their own initiative. Their children and/or a friend's/relative's children were at risk. The same thing is true now, but no bombs are involved. However, if students cannot compete academically, they will face a life of frustration, humility, and scorn, except for the 1% with very wealthy parents. Denial of verifiable scientific facts is not a good approach in educating the young. In the long term, science triumphs somewhere on the planet — ideology loses after much misery and death.

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