

Science: Use it or lose it

Dr. Hugh W. Ellsaesser tackles the anti-science mafia, on such “politically correct” issues as global warming and ultraviolet radiation.

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1. Introduction

Restoring the environment in the 21st century is a far different problem from that described by the environmentalists and the mainline media. To be able to define, much less solve, the problems of the environment, we must first correct a far more serious problem: the divorce of logic from and the prostitution of science.

Over the past century, the body of scientific knowledge has expanded tremendously. As a result there has been a progressive fragmentation into narrow disciplines, each with its own jargon and specialized journals. This has restricted communication with the general public and even with scientists in other disciplines. Meanwhile our schools have tended to remove, or at least reduce, science course requirements from non-science majors. Through these processes it has become more and more difficult for the general public to communicate with scientists. And those with whom they cannot communicate, they tend to distrust and fear.

Over the same period, most research scientists have been compelled to compete for research support funds, mainly from the Federal government. This has impacted the work of research scientists in several ways.

Most of the environmental research supported by the government is designed to substantiate what we think we already know — such as the health effect of air pollutants, or to protect us from environmental hazards, such as acid rain, ozone depletion, and climate change. At present, most of the research on climate change is designed primarily to determine if climate change is occurring, not to understand it and, in particular, not to determine what, if any, benefits it might bring.

I’m sure you have all heard of political correctness and

how it has been used by minorities to impose their agendas on the majority. You also must have seen some of the many items on junk science in the courts, and how it has been used to drain funds from deep pockets and to advance the careers of the prosecutors. In a democracy, while it is the duty of the majority to protect and provide equal opportunities for minorities, it is by no means their duty to allow themselves to be bullied, intimidated, and browbeaten into providing special treatment for any minority.

In brief, science has lost its aura as an honorable and trustworthy repository of systematized knowledge derived from observation, study, and experimentation. As a consequence, a large number of corporations have closed or reduced their in-house research efforts and withdrawn funding from scientific research organizations. They explain this action by stating that “science no longer matters in scientific debates” (Doctors for Disaster Preparedness, 1994). Instead, they are placing more reliance on pollsters and public relations agencies.

Under these conditions, why wouldn’t corporations, or anyone else, withdraw support from scientific research and adopt approaches that clearly seem to be more successful?

2. Examples of the misuse and non-use of science

a. *The London “killer smog” of 1952.* In early December 1952, there was a so-called “killer smog” in London. Essentially every reference to this event notes that air pollution during the event was responsible for some 4,000 “excess deaths.” The official investigating committee was unable to identify any substance in the air, which in the concentration surmised to have been present, could have caused these “excess deaths” by any known mechanism.

Since I lived in London at the time, I was motivated to study this and related incidents in detail. It is my conclusion that this spike in the London mortality curve was due to the second wave of an influenza epidemic (Ellsaesser, 1989, 1994). Such an epidemic was clearly recorded at that time in north and central England and across the Channel in Europe. In fact, the influenza literature expresses wonder at the absence of any reports of an influenza epidemic in the London area at that time, but the local authorities, for reasons best

known to themselves, preferred to call it an air pollution episode.

The acceptance of air pollution as the cause of this London episode has biased and continues to bias, by intimidation, those who have examined the evidence on health effects of air pollution and found it unconvincing, except for episodes like London's "killer smog."

b. *The health effects of low-level radioactivity.* Essentially every poison we know, has been demonstrated to have beneficial effects at low concentrations or doses. This property is called hormesis. My friend Dr. T. Donald Luckey (1980, 1992), has spent a lifetime documenting the fact that ionizing radiation, or radioactivity, also has this property. He has collected hundreds of published studies confirming the hormetic effect of ionizing radiation and indicating that we would all be healthier, live longer, and have fewer mutations, if our exposure to radioactivity were increased up to ten times above what we now accept as the background level of radioactivity.

Instead of accepting this fallout benefit, we are spending billions, if not trillions, of dollars to avoid exposure to any detectable or computed increase in exposure to radioactivity traceable to man's activities.

c. *Increased ultraviolet (UV) from ozone depletion.* As you are no doubt aware, the Montreal Protocol was adopted in 1987 to reduce the release of stable and insoluble chlorine compounds to protect the stratospheric ozone layer. The rationale was to protect us from the increased exposure to solar ultraviolet (UV) radiation permitted to reach the Earth's surface by a thinner ozone layer.

On an annual mean basis, UV flux to the surface increases approximately 50-fold from the poles to the equator (Mo and Green, 1974). This is roughly a doubling for every thousand miles, or a local 1% increase for each 10 miles of displacement toward the equator. For skin cancer incidence over the United States, data collected by the U.S. Academy of Sciences (1975) showed an increase of 1% for each 6 miles of displacement toward the equator. The World Meteorological Organization (1995) estimated that each 1% decrease in the ozone layer would lead to a 2.3% increase in ordinary skin cancer incidence. From the above numbers, a 1% decrease in the ozone layer, in terms of skin cancer incidence, is equivalent to moving 14 miles (22 km) toward the equator.

In 1987, the predictions were that man-released stable chlorine compounds would rise into the stratosphere. Above about 20 km, they would encounter sufficiently energetic UV radiation to be decomposed, releasing free chlorine. The chlorine would catalytically destroy ozone, primarily near the 40 km level. If the release rate remained unchanged until equilibrium, in about 75 years, the global mean ozone layer would be reduced by about 5% (Solomon, 1990).

For the United States, with about 600,000 skin cancer cases per year (U.S. Academy of Sciences, 1975), this would mean approximately 75,000 additional skin cancers per year. It would also be equivalent to each of us moving 70 miles



Dr. Ellsaesser at a forum sponsored by 21st Century magazine, Sept. 30, 1992.

(110 km) toward the equator. Does this sound like a serious problem to you?

What has happened in the interim? Ozone at 40 km has decreased but only about half as much as predicted for now. Total ozone, on the other hand, has declined much faster than predicted; the global mean 5% decline predicted for about 2060 was exceeded in 1993. The level has increased only slightly since 1993. I have no information as to whether ordinary skin cancer incidence has increased 11.5% as predicted for such a thinning of the ozone layer.

Essentially all of the observed decline in ozone has occurred at levels below 20 km (WMO, 1995), rather than near 40 km as predicted. In the tropics, there is very little ozone below 20 km. Essentially every study published has reported either no decline in ozone, or only a statistically insignificant decline in ozone near the equator. That is, the observed decline in ozone has been at low levels in higher latitudes where ozone is almost chemically inert, or in storage. Ozone is not generated in these areas, it is carried there by atmospheric motion. Accordingly, there are reasons to believe that the disappearance of ozone from these regions has been due to a change in atmospheric circulation rather than a change in chemistry (Ellsaesser, 1996).

d. *The blind eye toward beneficial effects of UV.* Another aspect of the stratospheric ozone problem that has been completely ignored by the establishment, is the beneficial effect of UV exposure. For terrestrial vertebrates, the principal natural source of the vitamin D required to convert calcium into bone



“Have you heard of any consequence of global warming comparable to 3 kilometer (10,000 ft) ice caps over Hudson Bay extending down to Long Island and the Great Lakes? We need more CO₂ in the atmosphere to avoid the now-due next glacial.” Here, the Columbia Glacier near Valdez, Alaska.

is from the action of UV on oils in the skin. Feathered and furred animals get their vitamin D from self-grooming.

The most serious health effects from UV result from a deficiency of UV rather than from an excess. Rickets is a very serious disease occurring in children getting insufficient UV exposure or vitamin D in their growing years. Discovery of this relationship led to the regular dosing of babies with cod liver oil—an economical natural source of vitamin D. Even if a person escapes rickets, he or she may end up with a slight skeleton, less able to withstand the bone loss from osteomalacia common in later life.

In the United States, it is estimated that 20-25 million people suffer from osteomalacia, including more than 25% of the women beyond menopause. Among these, there are over twice as many bone fractures per year, typically of the spine or femur, as there are new skin cancers per year. Theoretically, an increase in UV exposure would alleviate this condition in future generations, just as, theoretically, it would lead to additional cases of skin cancer. Considering only the numbers and seriousness of skin cancer and osteomalacia cases, it appears likely that an increase in UV exposure would provide a net health benefit. Suppression of osteomalacia by increased UV was found by a Dutch study of comparable susceptible groups living in the Netherlands and in Curaçao (Dubbelman et al., 1993).

It's quite likely that there are other health problems alleviated by increased UV. Although little work has been done in this area, one group of doctors has found a significant negative correlation between both vitamin D availability and exposure

to sunlight (a fair surrogate for UV) and the mortality rates from both colon and breast cancers (Garland and Garland, 1980; Garland et al., 1989; Gorham et al., 1989).

3. Greenhouse warming

a. *The large discrepancy between observed and model-predicted warming.* Since Manabe and Wetherald (1967) first calculated the climatic effect of a doubling of carbon dioxide (CO₂), the predicted warming from man's additions of greenhouse gases to the atmosphere has exceeded the warming actually observed; and this difference has gotten progressively larger.

The Intergovernmental Panel on Climate Change (IPCC, 1990) estimated the warming over the past century from the observational record as 0.3-0.6°C (0.54-1.08°F). They also published a graph of the model-predicted warming showing values of 0.7-1.4°C (1.08-2.16°F) for 1990. IPCC (1990) claimed these were “broadly consistent,” even though they do not even overlap. After man-produced sulfates had been included in the calculation, IPCC (1996) stated that when greenhouse gases only are taken into account, most models produce “a greater warming than observed to date.”

The range of uncertainties with regard to sulfates is so large that modelers can achieve any degree of agreement with observations desired—globally. However, the bulk of the sulfates are in the Northern Hemisphere, and the hemisphere-by-hemisphere comparison constitutes a serious discrepancy for the argument that sulfates are reducing greenhouse warming.

The absence of polar amplification of the warming in the observational data and the slight global cooling indicated by the satellite and upper-air sounding data since 1979, when satellite observations began, are additional serious discrepancies between the observations and model predictions.

The discrepancy in the degree of warming between observations and model predictions is significantly larger than the data above indicate. Since, as IPCC (1990, p. 254) stated: "It is not possible at this time to attribute all, or even a large part, of the observed global mean warming to the enhanced greenhouse effect on the basis of observational data currently available."

b. *The environmentalists' maxim: "Man can do no right."* Research on environmental issues has been biased from the beginning by the maxim that man can do no right. That is, don't bother to look for or to try to document any possible beneficial consequences of man's actions on the environment; there aren't any. But in fact, as already noted above with respect to ozone depletion and UV increase, there are beneficial consequences from man's actions on the environment. And this is particularly true in the case of adding CO₂ to the atmosphere.

1) Greenhouse warming could delay, and hopefully prevent, the next glacial period. Our current understanding of past climate is, that since the time of the dinosaurs, about 100 million years ago, the global mean temperature has cooled about 10°C (18°F). About 3 million years ago, the present ice age began with alternating glacial and interglacial periods. Over the past 700,000 years, there have been seven glacial/interglacial cycles with a global mean temperature range estimated at 5 to 7°C (9 to 11.6°F). The cycles were marked by about 90,000 years of staged cooling, with 3 km (10,000 ft) ice caps building over Hudson Bay and extending down to Long Island and the Great Lakes. After the maximum glacial stages, there were relatively rapid warmings back to interglacial stages lasting 10-12,000 years. We are currently in an interglacial, called the Holocene, which we estimate began 10,700 years ago.

Our best guess is that these cycles were caused by changes in the latitudinal and seasonal distribution of sunlight, due to periodic changes in the Earth's orbit around the Sun. In any case, we know of no reason why they should not continue. Since we are now due to enter the next glacial period with 90,000 years of cooling; should we not try to delay, and thereby hopefully to prevent, this impending glacial? Have you heard of any consequences of global warming comparable to 3 km (10,000 ft) ice caps over Hudson Bay extending down to Long Island and the Great Lakes? We need more CO₂ in the atmosphere to avoid the now-due next glacial.

2) More CO₂ can continue and enhance the Green Revolution. CO₂ is essential to plant life; and most scientists now concede that some fraction of the increased agricultural yield of the past century is due to increased atmospheric CO₂ con-

centration. Our oldest CO₂ monitoring station, on Mauna Loa, has from the beginning showed a marked annual cycle with CO₂ decreasing during the spring and summer, that is, the crop-growing season, and increasing during the fall and winter, the time of withering of leaves and decompositional decay of plant debris. Since the observations began in 1957, the amplitude of the annual cycle has increased about 20% (Idso, 1995). This is the most convincing evidence we have that man's additions of CO₂ to the atmosphere has increased the productivity of the biosphere on a global scale.

3) Is the worldwide decline in coronary mortality due to enhanced CO₂? Dr. Sherwood B. Idso (1985) reported evidence of already detected beneficial effects for the increased CO₂ in the atmosphere on both plants and animals. Among the latter, he cited "the significant worldwide downturn in circulatory heart disease experienced over the past two decades."

This sounds a bit far-fetched. But it must be recalled that respiration rate is controlled by the concentration of CO₂ in the blood, not the concentration of oxygen. Thus, if increased CO₂ makes us breathe more deeply, isn't it logical that this might take some strain off of our circulatory systems? It may be that we need more CO₂ in the atmosphere to take stress off our circulatory systems.

Can you imagine the U.S. government expending research funds to determine if there is any validity to Dr. Idso's suggestion? Such a proposal would get the same negative reaction as did Don Luckey's attempts to get research funds to prove that mice would be less healthy and die sooner if deprived of normal ionizing radiation from radioactivity.

4. Is there a discernible human influence on global climate?

The most quoted phrase from IPCC (1996) is the following blunt section heading from the Summary for Policymakers: "The balance of evidence suggests a discernible human influence on global climate." Substantiation of such a claim requires both that a non-natural climate change be identifiable in the observational record and that it be of such a nature that it can with confidence be attributed to the actions of man.

Rather than attempt to make the details of the evidence contradicting such a claim intelligible to you, I have assembled subsequent statements from some of the principal authors and defenders of IPCC. In my view, these statements clearly contradict the IPCC claim.

"No one to my knowledge who is informed is claiming certainty of detection or attribution [of a human influence on global climate]; certainly the IPCC is not."—John T. Houghton (1996), Leading Editor of IPCC (1990, 1992, 1996).

"We say quite clearly that few scientists would say the attribution issue was a done deal."—Benjamin D. Santer (see Kerr, 1997), Lead Author of Section 8 of IPCC (1996).

"Many climate experts caution that it is not at all clear yet that human activities have begun to warm the planet—or how

bad greenhouse warming will be when it arrives.”—Richard A. Kerr (1997), research news and comment writer for *Science* magazine.

“However, the inherent statistical uncertainties in the detection of anthropogenic climate change can be expected to subside only gradually in the next few years while the predicted signal is still slowly emerging from the natural climate variability noise. It would be unfortunate if the current debate over this ultimately transitory issue should distract from the far more serious problem of the long-term evolution of global warming once the signal has been unequivocally detected above the background noise.”—Klaus Hasselmann (1997), Max Planck Institute for Meteorology.

To me, these statements not only refute the IPCC claim that “the balance of evidence suggests a discernible human influence on global climate”; they also suggest that this claim was studiously crafted, crafted to induce the media to broadcast to the citizens and policymakers of the world a message which few if any of the researchers, on whose work it was based, are yet willing to defend before the scientific community.

5. Conclusion

I hope I have persuaded you to at least consider the possibility that the environment is not the primary hindrance to our

progress in the 21st century. I also hope that you will take seriously my warning: If we do nothing to return an aura of honor, truth, and trustworthiness to science, we are in danger of losing the benefits of science altogether.

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