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Point of View

## **Activism, Mendacity, and Pathological Science Distortion of Science Has Given Rise to Flawed Policies and Regulations**

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Consumers are increasingly being exposed to what chemistry Nobel laureate Irving Langmuir dubbed “pathological science,” the “science of things that aren’t so.” It is the specialty of self-styled public interest groups, whose agenda too often is not protection of public health or the environment, but intractable opposition to whatever research, product, or technology they happen to dislike. This is not a harmless diversion: When their machinations give rise to overregulation or even bans of safe and useful products or processes, all of society is the poorer for it.

Activists who disapprove of certain kinds of R&D or marketed products often try to stigmatize them via guilt by association with corporate interests. For several reasons, however, including the importance of corporate branding, avoidance of liability, and a desire to succeed in the marketplace, industrial research most often adheres to high professional and legal standards, including peer review. When it doesn’t, the scientific method, market forces, and regulatory oversight collaborate to ensure that, ultimately, dishonesty is exposed, condemned, and punished.

By contrast, activist-funded research is commonly held to a lower standard, or none at all. Activists’ claims are typically promoted by alarmist press releases and reported by the media (their dual mottos: “If it bleeds, it leads,” and “Never let facts get in the way of a good story”), but seldom are they independently peer-reviewed and published in scientific journals. Sadly, after its claims are repeated again and again, policy-makers, the media, and the public come to accept this pathological science as credible or even proven.

Misinformation thrives in part because of the “information cascade” phenomenon, the way in which ideas gain acceptance by being parroted until eventually we assume they must be true even in the absence of persuasive evidence.

Health Scares

Examples have become more frequent as special interests promote health scares as a way to raise funds or to support litigation. The distortion of science has given rise to flawed policies and regulations, interference with research that offers potential benefits to society,

unwarranted scares, frivolous lawsuits, and actual threats to public health. Examples include:

- Two decades ago, the [Natural Resources Defense Council](#) spurred a national panic by asserting that the agricultural chemical Alar, which synchronizes the ripening of apples, posed a cancer risk to children. The claim was later determined to be false, but not before it had devastated apple growers.
- Long Island activists had long claimed that the elevated breast cancer rate there is the result of exposure to environmental chemicals like PCBs and DDT, and demanded that federal regulators investigate. However, they were unable to find evidence for that hypothesis because their basic assumption was incorrect: There is no elevated breast cancer rate in that area.
- In 1998, British researchers published a study that alleged an association, but not causation, between the administration of MMR (measles-mumps-rubella) vaccine and an increased risk of autism. That prompted speculation that the culprit might be thimerosal, a mercury-containing preservative in the vaccine.
- In spite of the fact that the initial study was based on only 12 children, its results were widely publicized, causing some parents and hospitals to stop or delay vaccinations for newborns and children.
- Subsequent studies of much larger groups of children failed to confirm such an association, and the author is under investigation for falsifying data in the study.
- The overwhelming consensus among scientists and physicians is that no such link exists. Nevertheless, this false report inflicted incalculable damage on the public's confidence in vaccination and on children whose parents denied them protection from life-threatening but preventable diseases.
- A dubious NGO called the [Environmental Working Group](#) (EWG) claimed to have evidence that the farm-raised salmon eaten regularly by millions of Americans contained high levels of PCBs. This group of chemicals was identified in the press coverage as a toxin, probable human carcinogen, or a cause of cancer and nervous system damage. These reports were grossly misleading. At levels of environmental exposure, PCBs have not been shown to cause cancer or any other harm to humans. The study, which was based on a sample of only 10 fish, was condemned by genuine experts at a variety of institutions, including the [Harvard School of Public Health](#), the FDA, and the [American Council on Science and Health](#).
- Unfortunately, the criticisms came only after EWG's report had generated national media coverage, and the contrary views of experts received little attention from the media. On its website, the EWG makes no pretense about its possessing scientific credentials or expertise, and its president once admitted to a journalist that there was not a single physician or scientist on its staff.
- Environmental activists remain intractably opposed to the spraying of DDT to prevent mosquito-borne diseases. Since the banning of DDT, diseases such as malaria and dengue have been on the rise.

- In fact, the huge toll of diseases spread by mosquitos caused some public health officials to rethink DDT's use: In 2006, after 25 years and 50 million preventable deaths, the UN's [World Health Organization](#) (WHO) reversed course and endorsed the use of DDT to kill and repel malaria-causing mosquitoes. Inexplicably, in May, WHO reverted to the endorsement of less effective, more expensive methods for preventing the disease.
- Those opposed to the use of DDT fail to take into consideration the inadequacy of alternatives. Because it persists after spraying, DDT works far better than many pesticides now in use, some of which are toxic to fish and other aquatic organisms. With DDT unavailable, many mosquito-control authorities are depleting their budgets by repeated spraying with short-acting, marginally effective insecticides. Moreover, even if mosquitoes become resistant to the killing effects of DDT, they are still repelled by it. An occasional dusting of window- and door-frames is extremely effective.
- During the past decade or so, activists have alleged that hormonally active compounds in the environment, which are known to be present in minuscule amounts, are causing reproductive and developmental problems in wildlife and humans. There is a difference, however, between *plausibility* and *provability*, and formal scientific studies have not shown any link between environmental agents and the suspected adverse effects. Ironically, much of the human exposure to estrogenic substances is from food, especially soy products. Thus, on the basis of current knowledge, the claim of an estrogenic assault on males and females is pure speculation.
- The mysterious disappearance over the past several years of honey bees from hives, known as colony collapse disorder (CCD) or honey bee depopulation syndrome (HBDS), captured the attention of the media. It also stirred the imagination of environmental activists, who, in the absence of a known cause of the phenomenon, vociferously blamed it on everything from pesticides and gene-spliced crop varieties to cell phones and global warming.
- New scientific evidence strongly suggests that the culprit is none of those things, but rather an infestation by a fungus, *Nosema ceranae*. Researchers who studied a number of professional hives in two regions of Spain that experienced a syndrome akin to CCD found that the fungus was the only pathogen observed in all cases, that pesticides seemed not to be involved, and that application of the antifungal agent fumagillin to affected colonies proved effective in stopping reinfection and improving survival.
- The activists have been strangely silent, and the media have ignored this important finding. Not apocalyptic enough, apparently; merely the insect equivalent of a dog-bites-man story.

**Pathological science may confuse not only the public, but also policy-makers. Donald Kennedy, president emeritus of [Stanford University](#) and former FDA commissioner, chides bureaucrats: “Frequently decision makers give up the difficult task of finding out where the weight of scientific opinion lies, and instead attach equal value to each side in an effort to approximate fairness. In this way extraordinary opinions...are promoted to a form of respectability that approaches equal status.”**

**This kind of undeserved moral equivalence frequently compromises governmental decision making and has given rise to unscientific and inconsistent regulation of many other products and technologies as well, including pesticides and other chemicals, biotechnology applied to agriculture, herbal dietary supplements, and silicone breast implants.**

**No one should mistake activists’ misdemeanors and mischief for naïve exuberance or excessive zeal in a good cause. In case after case, their motives are self-serving and their tactics callous an ongoing example of the sentiments expressed by Linus Van Pelt in the *Peanuts* comic strip, “I love humanity; it’s people I can’t stand.”**