

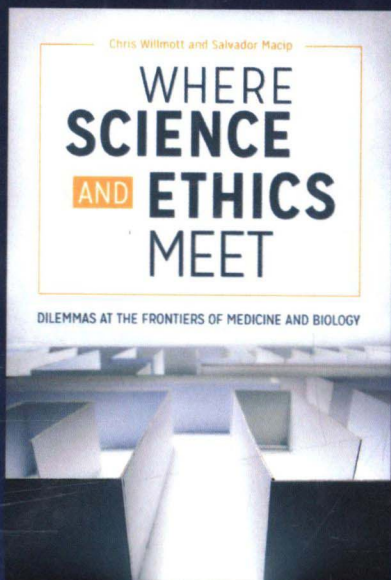
Erika Allen Wolters and Brent S. Steel

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Why We Question the Experts on Everything
from Climate Change to Vaccinations



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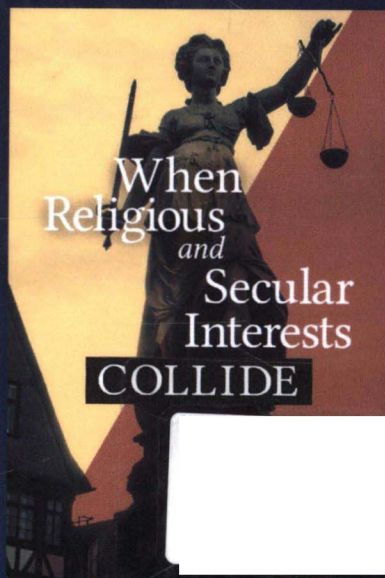
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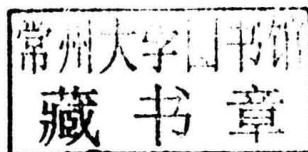
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Erika Allen Wolters and Brent S. Steel



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When Ideology Trumps Science

Preface

The United States is currently at a crossroads. We are now in a political era where facts are fluid and the truth is subjective. This is dangerous territory. Science and empirical facts are the proverbial glue that should transcend ideology and worldviews. When we disregard science in order to construct a reality that fits more into the way we want the world to be rather than the way it is, we risk outcomes that do not adhere to the laws of science. This book provides a sober analysis of how embedded beliefs rather than a lack of scientific knowledge and understanding are creating a cognitive bias toward information that coincides with personal beliefs rather than scientific consensus—and that this antiscience bias exists among liberals as well as conservatives.

Whether we are cognizant or not of the enormous influence science and technology has had on the United States, it has shaped our economy, society, and culture in innumerable ways. Instead of being critical analysts of scientific information, we default instead to cultural constructs of values and worldviews to inform our policies on critical social and environmental issues. The United States has maintained a global leadership role because of our advancements in science and technology. However, at a time when science is even more critical in helping policy makers and the public understand crucial issues like climate change and food production, science is being sidelined for ideological or personal values.

The consequences of ideology trumping science can be devastating. For example, while vaccines exist for many diseases, some parents chose not to vaccinate their children as a result of personal fears and a distrust of the scientific community. A 2010 outbreak of whooping cough in California infected more than 8,000 people, resulting in the

hospitalization of over 800 people and the death of 10 infants. In 2015, an outbreak of the measles in Disneyland infected more than 125 people. Both the whooping cough and the measles are vaccine-preventable diseases that have been largely nonexistent in the United States for decades. As these cases demonstrate, individuals who prioritize ideology or personal beliefs above scientific consensus can impinge on society at large—rejecting science has unfortunate results for public health and the environment. The effects of climate change may lead to even more drastic long-term and global consequences for human health, lifestyles, food supplies, and other deleterious impacts.

It is our hope that this book may play a small role in getting people to think about the proper role of science and scientists in society and the policy process, and to reflect on their own values and ideology concerning their acceptance or rejection of scientific information—especially when there is a consensus in the scientific community.

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expression of power that favors certain elites, while also seeking to discredit and marginalize other truth claims, most notably those of religion. Others in this vein classify science, and the practice of scientists, as but another social institution with its own particular social and cultural “processes” that are inevitably replete with politics and values.

This book is an exploration of how values and worldviews overshadow scientific consensus on climate change, GMOs, vaccinations, abstinence-only education, issues related to teen sexual activities, and stem cell research. In each case, those who question the science marginalize scientific agreement in favor of policies that best reflect their personal beliefs and preferences, often at the peril of the environment and public health.

SCIENCE VERSUS POLICY

On March 28, 1979, the Three Mile Island nuclear power plant in Pennsylvania experienced a partial meltdown. Four days later on April 1st, the situation was contained and the crisis was determined to be over. In the months following the meltdown, several government agencies conducted studies on the potential health impacts to residents that found that among the 2 million people potentially exposed, there were no adverse health effects that could be attributed to the exposure to radiology (U.S. Nuclear Regulatory Commission, 2014). In fact, people were exposed to a fraction of the amount of radiation in an X-ray, and “in spite of serious damage to the reactor, the actual release had negligible effects on the physical health of individuals or the environment” (U.S. Nuclear Regulatory Commission, 2014).

The resulting consequences of the meltdown impacted the public perception of nuclear energy safety, particularly regarding public health. Further, Three Mile Island mobilized the antinuclear movement and became the symbol of nuclear instability and danger. In 1986, the Chernobyl disaster in the former Soviet Union confirmed fears over nuclear safety with more than half a million people affected by high levels of radiation and the death of 31 people. Together, these events solidified resistance to nuclear energy, particularly among liberal Democrats, even though many scientific experts often praise the overall safety record of the U.S. nuclear industry (Porter, 2016).

Conservatives are currently leading the opposition to climate change legislation that would curb greenhouse gas (GHG) emissions for the United States, often denying that climate change is even real. Yet 60 percent of Republicans favor building nuclear power plants (Pew Research Center, 2015), a decidedly clean energy source that could offset oil and

coal and reduce GHG emissions. Alternatively, only 35 percent of Democrats support building nuclear power plants (Pew Research Center, 2015), although they are the most adamant about climate change policies to reduce GHG emissions. Somewhat ironically, Republicans are more aligned with scientists in their support of nuclear energy, with 65 percent of scientists in the American Association for the Advancement of Science concurring that more nuclear energy facilities should be built (Porter, 2016).

The controversy over nuclear energy illustrates an ongoing disparity between beliefs shared by the majority of scientists and the biases of the public. However, the lack of public support for science policy issues is often less about science and more about worldviews. If there is consensus that science holds truth through rigorous testing of hypotheses and resulting evidence to support or disprove a theory, then science cannot be used like a coat on a cold day—something to take on and off at an individual's discretion. And yet even people who strongly support scientific evidence in one policy issue may strenuously object to the same scientific principles being applied to other policy issues.

In 2015, the Pew Research Center released a study on the similarities and differences between “Public and Scientists’ Views on Science and Society.” Results from this study found that although both the public and scientists hold science in high regard, there are rather sizable discrepancies in their views regarding several key policy areas (Pew Research Center, 2015). Among some of the findings were an 18 percent gap between the public and scientists on the issue of requiring the measles, mumps, and rubella (MMR) vaccine (68% public compared to 86% scientists). Similarly, on the issue of genetically modified foods, a 51 percent gap exists between the public and scientists: 88 percent of scientists feel they are safe to eat, while only 37 percent of U.S. adults believe they are safe to eat (Pew Research Center, 2015). Further, U.S. adults have difficulty demonstrating what is generally considered scientific consensus. When asked whether the universe was created by “the Big Bang,” 52 percent of U.S. adults said that “scientists are divided,” while only 42 percent said “scientists generally believe” (Pew Research Center, 2015). The lack of public knowledge of science concerns scientists, with 84 percent saying that the “public doesn’t know much about science,” in part blaming the media for “oversimplifying the problem” (Pew Research Center, 2015).

The difficulty with this assessment is that we are now living in a time where “information” is abundant. A simple click on a computer can open a plethora of information pertaining to almost any current science-policy problem. A study conducted by the National Science Foundation (NSF)