

Warning! Dangers Ahead for Science

June 14, 2016

Back in 2014, I was asked “What are the most important scientific issues facing the world and the most important issues facing the scientific community?” I answered as follows and plan to write about many of these points in greater detail in the coming year:



1. Science is rapidly losing its standing as the source of “public knowledge” (knowledge used to establish the facts) for resolving disputes and making decisions.
2. Science is increasingly considered by others within academe as a non-objective social construct, fundamentally conservative, protective of the status quo, fraught with biases and self-justifying.
3. Science communication is generally poor and sometimes counterproductive. The best scientists are usually capable of explaining their work clearly. Alas, most are not.
4. Science literacy is frighteningly weak in the U.S., the country that sets the science agenda.
5. Science is valued as providing a cornucopia of economic benefits, rarely as a way of knowing the world.
6. Explanatory science is being crowded out by approaches that emphasize association over causation, which is the essence of science; we should not confuse phenomenology and association with explanation and mechanism.
7. Misbehavior by scientists is discrediting us in the eyes of the public but like much crime it is rewarded most of the time unless, and until, the perpetrator gets caught.
8. Science is moving from a model of unfettered exploration to a model of “professionalization” without managing or even recognizing the transition, which may lead to many unintended consequences.
9. Diversity in science is dealt with too narrowly, as a problem of access for the community and not a problem of the integrity of science.

Sigma Xi, in partnership with other generalist science organizations such as the

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Sigma Xi, The Scientific Research Society

Sigma Xi's magazine, American Scientist, won three EXCEL Awards from Association Media & Publishing. bit.ly/29pYP7s [#amp16](#)
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American Association for the Advancement of Science (AAAS), can address and make progress on these problems in several ways:

- Prepare scientists to communicate more clearly and effectively (a skill that must be learned and practiced).
- Prepare some scientists to act as advocates for public policy in support of science.
- Put responsive and well-prepared scientists together with decision-makers and shapers of public policy.
- Articulate sound and evidence-based interpretations of science that are accessible and useful in public discourse.
- Further the “civic culture” of science that values integrity and rigor.
- Promote a society in which science is appreciated and considered a pillar of the culture and intellectual life.

This last point is critically important. Science is integral to our culture, not an add-on or the concern only of scientists. It is a “way of knowing” that grounds our culture in objective truth, celebrates the search for verifiable knowledge, and rewards skepticism. Our culture needs science and we need to be in the mainstream of our culture. The mission of Sigma Xi has never been more important.



Tee L. Guidotti

More About Sigma Xi: Sigma Xi, The Scientific Research Society, is the international honor society of science and engineering. One of the oldest and largest scientific organizations in the world, Sigma Xi has maintained a distinguished history of service to science and society for more than a century. Scientists and engineers, whose research spans the disciplines of science and technology, comprise the membership of the Society. Sigma Xi chapters can be found at colleges and universities, government laboratories, and industry research centers around the world. More than 200 Nobel Prize winners have been members. The Society is based in Research Triangle Park, North Carolina. www.sigmaxi.org. On Twitter: [@SigmaXiSociety](https://twitter.com/SigmaXiSociety).

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Research Triangle Park Sigma Xi Chapter is rewatching today's [#AmSciGHO](https://t.co/k84l6kPpP6) on research [#theRTP](https://t.co/k84l6kPpP6) [pic.twitter.com/7MKqExGULb](https://t.co/k84l6kPpP6) a day ago

