

LETTERS

Edited by Jennifer Sills

America's crisis of faith in science

FIFTY-THREE PERCENT OF Americans are not convinced that human activity is causing global warming (1). Why? The issue is faith, not facts. Shockingly few people can actually know—in any intelligent, meaningful way—that global warming is real. The rest of us do not have access to the huge quantity of data, and we wouldn't understand it if we did. We simply aren't competent to judge for ourselves what scientists are telling us. Often enough, scientists in one specialty aren't even competent to assess data and conclusions in another specialty. We cannot see climate change with our own eyes, yet we have faith in the scientific method. That is what gives science the right to an authoritative voice in public policy.

Others do not have this faith. Simply stating to them that they are ignoring "facts" is juvenile, naive, and ultimately ineffective. For those of us who are not global warming scientists ourselves, it is also arrogant to insist that others believe what we only know on faith ourselves. The real challenge for scientists and those who speak for them is to inspire the public's faith in science.

What does this mean in practice?

(i) Be more open about the data used to support conclusions. Make more data easily available for others, such as journalists, to review.

(ii) Be more open about the methods. This was a crucial element in the 2009 controversy over hacked e-mails from a UK climate research institute, which came to light just before an international conference on mitigating climate change (2, 3). Legitimate debate among scientists was misunderstood by some of the public as evidence that the whole premise was unfounded.

(iii) Acknowledge the seriousness of scientific misconduct and do more to limit it. Such incidents may be rare, but they are highly consequential. They not only convince people that a particular scientific claim is false; they undermine the public's faith that science as an institution can be trusted to tell us what we can't see for ourselves.

(iv) Show more respect and less disdain for those who do not acknowledge



OUTSIDE THE TOWER

Bringing science inside prison walls

No cell phone, no car keys, nothing in my pockets. I make my way through the metal detector and past the sentry posted in the armored box. I walk into the first of several sealed concrete rooms. Clangs and buzzes signal the closing of one door, the opening of another. I am in prison to talk about science.

There is some evidence that embracing the power of nature and learning about science can facilitate the rehabilitation of inmates, pro-social behavior, and relief of corrections fatigue in prison staff (1–4). I have always enjoyed translating science for new audiences, but never for students in prison before.

After traversing the maze of security, I stand before my first class, take a deep breath, and begin my talk about terrestrial-aquatic interactions. It is immediately clear that the discussion reaches the women on a personal level. Their eyes brighten when I ask them about their favorite river. They are engaged, attentive, and curious.

After presenting in-prison science lectures several times, I realized how little I needed to alter my material for incarcerated students. Their hunger for information overwhelms their lack of exposure to science education, and their questions are just as keen as those of my brightest college students. My favorite lecture was one that merged science and art. We brought paper, pencils, and specimens (plants, shells, insects, pinned butterflies) into the prison and taught the basics of scientific illustration. We gave the students time to observe their specimens, to ask questions, and to explore the morphology of life through multiple senses. In a gray world of sensory deprivation, we gave them moments with nature and a chance to observe the world like scientists.

Enhancing scientific literacy in society requires us to cross boundaries and serve new audiences. In my case, that meant literally crossing the most impermeable boundary in U.S. society. My biggest surprise was that physical boundaries are just those—talking about science transforms us from people on the inside versus the outside to just people talking about ideas.

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REFERENCES

1. C. J. LeRoy, K. Bush, J. Trivett, B. Gallagher, *The Sustainability in Prisons Project: An Overview 2004–2012* (Gorham Publishing, Olympia, WA, 2012).
2. P. C. Little, *Environ. Educ. Res.* **21**, 365 (2015).
3. T. N. Kaye, K. B. Bush, C. Naugle, C. J. LeRoy, *Nat. Areas J.* **35**, 90 (2015).
4. Sustainability in Prisons Project (<http://sustainabilityinprisons.org/>)

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