

Preaching To The Choir

MRS Bulletin: Just last week I read a compelling editorial. Can't recall if it ran in *Science* or in *Physics Today*, but the gist of it was that greater attention needs to be focused on funding basic research and training in the sciences. Apparently we are currently withdrawing more from the bank of knowledge than we are putting back and technological bankruptcy is on the horizon if we don't change course soon.

Dr. Science I. M. Sage: Let me ask you what your own discipline is.

MRSB: Why, I hold a PhD in physics and have been doing materials research for many years, but I thought I was supposed to be interviewing you!

Dr. SS: Of course you are. You're going to coax some pearls of wisdom out of me and publish them in your magazine, right?

MRSB: Right. Is that not what we agreed?

Dr. SS: Of course again, though I think you're missing my point. Who reads your magazine? Other scientists just like you, yes? They will immediately recognize the validity of my arguments, not to mention their blinding eloquence, and probably tell their friends about it just as you just told me about that clichéd rehash of the standard "we're eating our seed corn" drivel.

MRSB: Surely you're not dismissing that problem. If memory serves, you have complained about the same phenomenon in previous interviews with us. Are you now reversing your position or just trivializing the issue?

Dr. SS: Neither! It's obviously a problem. Just like lots of other problems afflicting the science and technology community are obvious. Obvious to us, but only to us. I guess I once again must spell this out for you one syllable at a time. Try to follow this logic. We see a problem. The most articulate among us package it in a pithy capsule published in places only we go. We read it and applaud because it makes such good sense. We congratulate our pundits for making it seem as transparent as notions already in our heads, where of course it already is. We all feel good locked in this familiar self-validating circle. And, we are righteously annoyed with those policymakers who neither fix the problems nor read our editorials. They won't read this interview either. So I wonder why I'm even bothering to crystallize these ideas for you.

MRSB: What then shall we do? How do we change preaching to the choir into educating our political leaders, assuming

that is possible. We don't control great monolithic voting blocks. We can't contribute huge sums to campaign war chests. And, we certainly don't get invited to pen editorial pieces for *Time*, *Newsweek*, or any *Capitol Hill* daily.

Dr. SS: Step functions are the only way. Ah! I see from your puzzled expression that I've lost you again. All of us, including those who dole out the research funds, are differential beings. Our responses are proportionate to the steepness of the slope of events. It may even be a logarithmic response, a sort of pseudo-decibel scale. Unfortunately we tend not to care much about gradual trends in the larger status quo. We're too impatient to wait for benefits of healthy trends and relegate remediation of unhealthy trends to generations hence. "The safest road to hell is the gradual one—the gentle slope, soft underfoot, without sudden turnings, without milestones, without signposts."¹ On the other hand, the reaction to large, fast, nearly discontinuous, unexpected change is disproportionate the other way. A victorious underdog, hints of life on Mars, a heinous terrorist act—all stimulate exaggerated responses such as Congressional resolutions, grassroots donations, instant paperback books and made-for-TV movies. The sad truth is that a fast bomb that brings down a building will get our attention and a slow bomb like air pollution or eating seed corn won't. Sometimes our attention span is long enough, once it's raised at all, to actually institute a change before the status quo reasserts itself or a new and different step function distracts. We become easily inured to a series of similar step functions, however, as the decreasing font size reporting daily disasters on Space Station Mir attests.

MRSB: Would it not be unethical to manufacture such step functions just to sensationalize our otherwise methodical, measured, mundane, understated, long-horizon dedication to the advancement of humankind through science and technology?

Dr. SS: Some fields adopt a more Havelian² philosophy than others. You may have noticed that at least in the medical sciences, there are occasional wonder drugs announced in the fight against an

intractable scourge. They get sufficient notice to make the evening news, raise premature if not false hopes, and raise money for the NIH. Is this pandering or is it acquiescing to the public's right to know—to know not just what is but what might be—and who among us is not susceptible to excessive optimism in the face of breakthrough euphoria. Mind the words of John Polkinghorne³ who advised that "the trend is to look for God in dramatic discontinuities in physics or biology." Did you not see those otherwise perfectly normal people (at least for scientific types) at the Jet Propulsion Laboratory jumping up and down on national television like giddy teens? Except for the cynics who ascribed that juvenile display to a preplanned show of contrived humanity to gain popular support for science (and who also still ascribe the moon landing to a studio in Hollywood), most saw normally staid individuals unable to restrain themselves in the face of their own little bread-box-size step function taking its first halting step (or wheelfall) on the red planet. That is indeed contagious, as contagious as naming pet rocks used to be.

MRSB: Dr. S., I'm afraid we're just about out of space. Could you please briefly tell our readers how to prosecute your solution on our own planet where we are fairly certain about the existence of life?

Dr. SS: Venture out to the domain of the technically naïve but politically astute. Don't tell them what you know. You know too much. Rather, show them how you feel. Show them the positive consequences of developments in your field. Take a page from accelerator physics and bunch a long continuous stream of R&D progress into a burst of enthusiasm for the result. In short, keep it short, sweet, and most definitely steep. Then before the ewe's and awe's die down, make a crass pitch for support like, "put down your coffee cup and pick up your cell phone and call your Member of Congress (or Parliament) right now—then we can have dessert." Because you've warned me that we're about finished here, I'll ask your final question for you: "Isn't that asking more than most scientists are willing or even able to do?" Yes, I am indeed preaching to a choir that has not yet learned to sing a *cappella ex cerebro*. On that depressing note, I'm sure you would be thanking me for this insightful interview if I hadn't crowded you off the page.

As reported by E.N. Kaufmann

¹ C. S. Lewis, "Screwtape," in *The Screwtape Letters*, letter 12 (1942).

² "Even a purely moral act that has no hope of any immediate and visible political effect can gradually and indirectly, over time, gain in political significance." Václav Havel. Letter, Aug. 1969, to Czech leader Alexander Dubcek. Quoted by Havel in *Disturbing the Peace*, ch. 3 (1986; tr. 1990).

³ John Polkinghorne, Quoted in *Science* 277 (15 August 1997) p. 893.