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TIME

Why Scientists Are Smarter than Politicians

By Jeffrey Kluger

One of the best things about being an artist is that nobody can tell you you're doing things wrong. There's no true or false in a Picasso painting, no yes or no in a Mahler composition. That, of course, is how it should be.

The opposite is true for science and that's how it should be too. The scientific method is defined by the search for the irreducible truth. The riddle of a disease isn't solved till you've isolated the virus; no particle is fully understood till it's been successfully smashed. It's not for nothing that recent news of a neutrino that may have traveled .0025% faster than light is causing such a stir. If that vanishingly tiny anomaly can't be resolved and disproven, a century of physics could collapse. ([Read about how new research could turn physics on its head.](#))

But the stone walls between art and science aren't nearly as thick as they seem; indeed, in some ways they're entirely permeable. That's a lesson we badly need to learn if we're going to make sound policy decisions in an era in which science and politics seem increasingly at odds.

In the Oct. 3 issue of TIME, theoretical physicist [Lisa Randall](#) of Harvard University made a plea for greater deference to reason in the still-young but already-ugly 2012 presidential campaign. Randall lamented "the fundamental disregard for rational and scientific thinking" in a political culture in which Texas governor Rick Perry can dismiss evolution as "merely a theory that's out there," and Minnesota Congresswoman Michele Bachmann can traffic in poppycock about the HPV vaccine causing mental

retardation.

Randall's new book, *Knocking on Heaven's Door*, takes the case one intriguing step further. The book explores some of the biggest ideas in contemporary physics and how they undergird such everyday matters as risk assessment, logic and even our understanding of beauty. But it's in her chapter on creativity — not a quality always associated with the data-crunching business of science — that she makes her most compelling case against the willful know-nothingism that plagues public debate. ([Read about why Michele Bachmann is a real GOP contender.](#))

It takes a certain kind of hubris to be a pundit or politician and tell scientists — often many, many scientists — that they're wrong about what their studies have shown them. One of the things that makes it easy to make such counterfactual arguments is that there are often studies to back them up. The nonsense about vaccines causing autism began with a now-discredited 1998 paper by British physician Andrew Wakefield that linked the disorder to the measles-mumps-rubella vaccine. A far greater number of studies have shown that climate change is by no means fully understood. Anyone — scientist or not — can read papers on both sides and seem to come to a well-reasoned conclusion either way.

What distinguishes scientists from the rest of us is their ability not just to understand the data but to *derive* the data — which is a bit like the difference between being able to graph a 95-yd. touchdown run and being able to execute one, cutting across the seam and exploiting the gaps in coverage that the average person would never see. That's what good scientists do every day. "The cracks and discrepancies that might seem too small or obscure for some," Randall writes, "can be the portal to new concepts and ideas for those who look at the problem the right way."

That's not easy, and not even all scientists do it artfully or well. Randall cites autistics and — not entirely in jest — bureaucrats and academics as good examples of how simply having extraordinary technical skills can be meaningless without the creativity to exploit them. She quotes Pushkin, who once said that "Inspiration is needed in geometry, just as much as in poetry." Similarly, some of the most touching scenes in the movie *Rainman* are those in which the autistic lead character recites Abbott and Costello's brilliant "Who's on first" sketch, hitting all of the words but understanding none of the wit. ([Read about](#)

[the 100 best TV shows of all time.](#))

For any highly accomplished person, creativity begins with the least creative mindset possible—a near-obsessive ability to think endlessly about a problem, and indeed an inability not to think about it. "Even if golf pros perfect their swing over countless repeated attempts," Randall writes, "I don't believe everyone can hit a ball a thousand times without becoming exceedingly bored or frustrated." Tiger Woods could do that and—at least before his current woes on the links—the results showed not just in championship play, but in flat-out inspirational play. Something similar is true of science too.

"Once skills...become second nature, you can call them up much more easily when you need them," Randall writes. "Such embedded skills often continue operating in the background—even before they push good ideas into your conscious mind." Larry Page once told Randall that the "seed idea" for Google came to him in a dream, but that was only after he had been absorbed by the problem for months. We never questioned Woods' swing, and we certainly don't question the brilliance of what Page helped invent. But we feel free to sneer at what scientists tell us when it serves our political ends.

None of this means we should defer to scientists simply because they have the degrees to back up their claims. That kind of blind belief in the well-lettered has led to everything from the disgrace that was the eugenics movement to the nincompoopery of the vaccine scare. What's more, Randall herself is a scientist and not above a little inside-the-clubhouse bias. Still, history has tended to prove the points she makes.

Several years ago, when I was writing a book about the polio vaccine, I had the opportunity to spend months wading through the personal papers of Jonas Salk. It was only when I had gone through few the first few thousand letters, memos, notebooks and even scrawled phone messages that it occurred to me that I hadn't stumbled on a single doodle—not one. It became something of a game to look for one and finally, deep in a notebook in which Salk was recording data from a mouse study, there it was—a tiny triangular design made of perhaps six or seven pen strokes. That was it, the entire body of Jonas Salk's art work. And yet the inspiration to create a vaccine that hundreds of other scientists had sought—and the millions of lives that were saved as a result of it—is surely artistry of a far higher kind.

Scientists aren't always right, but when they talk, they deserve at least the initial presumption of wisdom. All of us — especially the people who seek to lead us — could well learn something from listening to what they have to say.

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