

But in pop-science, Science[®] is "knowledge" and deviation from the scientific catechism is "irrational." It's not just irrational to dispute consensus, but irrational to *fail to implement it in your personal life*.

In Practice

The greatest danger of pop-science is the unquestioned assumption that life should be led "scientifically." That we should "look for evidence," "question everything," and universally "challenge authority" (unless that authority is a professor). The problem should be blatantly obvious in hindsight.

An obvious example: in the 20th century, Western societies had to deal with the very real problem a bizarre increase in lung cancer rates. We "know" now that smoking tobacco and other substances apparently cause drastically higher lung cancer rates, but this was lost on the people at the time.

The relationship between smoking and cancer was highly circumstantial; there were some statistical correlations established, but as any pop-science guru will tell us "correlation is not causation!" For decades, scientifically minded people looked for evidence while millions more died. Smoking companies took refuge in the fact that there was no *mechanism* understood behind how smoking could cause lung cancer. With all scientific rigor, they insisted for decades that the increase in lung cancer was due to something else, or merely an increase in diagnosis capacity. And *they were on the side of scientific skepticism!*

Only now that there is some understanding of how carcinogens in smoke can damage the lungs can we say that the "scientific consensus" is that smoking causes lung cancer. Cute, but if people had been *"irrationally" cautious*, the human tragedy would've been substantially mitigated.

The problem is that "looking for evidence" before acting or non-acting is personally and socially dangerous. In nearly all circumstances, our intuition (crafted by millions of years of evolution) or social norms (which keep us to established safe routes) are much better guides to life than the scientific consensus, despite them being "irrational" (and sorry, religion is part of this too). When someone guzzles down some newly fabricated energy drink or gallons of soda, they're nearly certainly damaging their bodies in ways science does not yet understand. Don't wait 40 years for some longitudinal peer-reviewed study to prove that eating plastic is bad for you. Trust your instincts before you give credence to some YouTuber who says inane things like "There's no evidence that..."

My favorite little "irrationality" that we all commit is of course, sleep. After millennia of trying to understand it, there is no established scientific reason or justification for why humans "need" sleep. Sure there are hypotheses (memory processing, repair, maybe even something Freudian), but none close to common currency. In the words of one of the world's most prominent sleep researchers, William Dement, "As far as I know, the only reason we need to sleep that is really, really solid is because we get sleepy." Of course the absence of logical evidence to the necessity of sleep keeps no NdGT fan from wasting their time on the "Bronze-Age Myth" of the importance of sleep.

(Not) (Mis-)Understanding Complex Systems

The human body is a complex system in which every "system" is overlapping, somewhat redundant, all-affecting and fundamentally beyond linear analysis. Our scientific studies can find binary variables that correlate with a low p value, but that tells us nothing about what's actually going on and nothing about the underlying mechanisms. Again, the same is true of the human brain and the same is true of human *society*. Nothing is a simple input-output system.

What this means is that basically nothing from the world of pop-science can *ever* affect the basics of our lives because the interaction of our component parts are just non-amenable to any kind of generalizations that make intuitive sense to us. Everything we do affects our bodies in ways we can't predict so the proper strategy is always an "irrational" precaution and avoidance of novelty.

Things, of course, get especially touchy when talking about the "rational" management of society. Every good denizen of the post-Enlightenment world, even most of those on the "Right" have the idea that the economy and social relationships are simple one-to-one hydraulic systems that can be managed like a little steam engine. Now we've been rationally managed to hell and not back (and the solution is always more rational management).

The terrible truth is that traditional social norms are *irrational* and *still do* exist for a reason in the perennial gale of social evolution. Social change and social progress (note the lack of scare quotes) have always been happening, but only now do we have the naive idea that the units of society (people) have the competence to design and contribute to an otherwise unconscious evolution of social memes.

Anyway, I'll give the last word on this issue to Noam Chomsky, who somehow manages to say something clear and admirable on the subject:

"Science is a very strange activity. It only works for simple problems. Even in the hard sciences, when you move beyond the simplest structures, it becomes very descriptive. By the time you get to big molecules, for example, you are mostly describing things. The idea that deep scientific analysis tells you something about problems of human beings and our lives and our inter-relations with one another and so on is mostly pretense in my opinion—self-serving pretense which is itself a technique of domination and exploitation and should be avoided. Professionals certainly have the responsibility of not making people believe that they have some special knowledge that others can't attain without special means or special college education or whatever. If things are simple, they should be said simply; if there is something serious to say that is not simple, then, fine, that's good and interesting. We can perhaps find deep answers to certain questions that do bear directly on issues of human interest and concern, but that is rarely true."

"'Science' 'Communicators'"

One of the worst aspects of all of this is that this understanding of pop-science encourages people to distrust what they know or can judge of the world in favor of the caricature of the consensus of institutionalized academics. People have this idea that there are these intellectual, peer-reviewed demigods in universities who discover the secrets to the universe and communicate them through their messengers stationed at BuzzFeed and the Huffington Post. Betraying their infinite wisdom would make you "irrational" or a "fundie." The reality is that these demigods really just went to graduate school because they were lazy and initiativeless, and even in the abstract, most of their real work has nothing to do with your life whatsoever. It's only the messengers that convince you of that because it stimulates their power trip.

Science journalists, much like journalists generally, are people too incompetent and emotional to work in the private sector, too dumb to be academics (and the standards are abysmally low these days), too full of themselves to work in charity and too bumbling, weak and arrogant to work in a blue collar or manual occupation. Journalism is an attractive career to many because it demands the least rigor and honor and promises the greatest power and influence.

Their self-ordained duty is to overwhelm the public with a confusion of "studies" that increasingly seem to micromanage a neurotic person's life. "Studies show that" classical music may help infant brain growth, or that gluten ravages the intestines, or that simply owning more books causes higher scholastic achievement, or that Vitamin C or antioxidants or kale or whatever health-food *de jour* solve all the world's problems.

At the end of the day, the worst part is that we talk about "science" as if it's some kind of anthropomorphic creature with desires and feelings and a plan for us all. It's a uniquely modern flaw to say things like, "Science tells us that..." "Science is about..." "Science is against..." Does this not strike anyone else as creepy? The interpretation of science forced on the public is a scriptural one, where law to live life by are codified in "peer-reviewed" journals and communicated by intermediaries. 'Science's' purview is infinite and any failure to conform is some congenital failure or reason.

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