

Odds and Ends:

Scary Science, Pseudoscience and Why I Feel Upbeat About OAS

Recently I have started feeling more optimistic about prospects for OAS and for science in general in the United States.

July 14, 2010, the day before the Gulf Oil Spill was stopped by BP, I ran across an internet posting that caught my eye. The article warned about potential complications in closing the leaking well. Closing the well would trigger a massive eruption of methane from beneath the seafloor. Like an evil Balrog awakened by BP drilling too deep in the Gulf, the methane bubble would blast out of its containment, displacing trillions of gallons of seawater in a colossal explosion triggering unimaginable tsunamis and in short order wiping out (most) life on earth. Reading through the grim scenario, I was left saying "gee!"

Scary science: We eat this stuff up. We are fascinated with the horror and thrill of enormous colossal threat to all of human civilization, to the entire planet. Why?

If you ignored the rows of exclamation marks, the article began plausibly enough, citing the work of various scientists and making oblique reference to established facts from paleontology. Shortly, though, the discussion turned apocalyptic, referring to disasters of "biblical proportions", conjuring an ominous feeling of impending doom, news of the threat suppressed by powerful people or government; but foretold by obscure scientists, various signs, prophesy from ancient civilizations and so on.

Why does this stuff spread like fire on the internet and in our culture?

It's physiology.

Alarming information triggers release of stress hormones affecting the amygdala and hippocampus of the brain's limbic system. They ramp up our physiology, prepare us for 'fight or flight', sharpen our search for other potential threats and heighten our response. When we are stressed, our rational minds cede some control to our lower limbic brain elements. Critical thinking wanes. It is a positive feedback loop with negative consequences. Eventually the pituitary steps in and suppresses the stress hormone production and we "return to our right minds".

In a different camp of anti-intellectuals are those that deny the validity of science. The most prominent example today are those that deny that climate change is happening, or deny that the actions of the human race have anything to do with it. We have witnessed a sort of tribalism that supplanted reason and critical thinking here. I am struck by what seems a sort of fierce joy of non-scientists when they believe they can tell scientists they have gotten it wrong.

Critics of climate science for a decade or more have conflated science or pseudoscience with politics or a kind of tribalism. Reading endless blogs and commentary on the topic it is clear to me that the passion driving this discussion is not about a critical evaluation of the facts. It is tribal, an embrace of climate science, a standing with the folks in white lab coats...or a rejection of their "arrogant" claims and a bonding with others who likewise reject the science of climate change. This is not about science. It unfortunately has become about polemics, identity and ego. It is far from the clear critical thinking we do when our rational minds are not cluttered with emotions of resentment, jealousy, anger and frustration.

I see this long-winded debate winding down and us returning to our right minds in other ways. We as a people are waking up to the fact that we've been duped by a decade of anti-intellectualism. (Insert your favorite Will Rogers aphorism here).

Several facets of reality are becoming inescapably obvious. We are suddenly noticing that others who have not been wrapped up in our national traumas have been marching right along, improving their literacy and their accomplishments in science, technology, engineering and math (STEM). Our state and national leaders, seeing this, are urging a reinvigoration of our science education. Our Universities are receiving major grants to enhance learning in science for K-12 students.

And guess what OAS has as one of its core missions....that's right, science education.

As we recognize we have been misled by pseudoscience and voices of ignorance with little understanding of science, we are ready to turn away from polemics and begin to ask questions again – always a good beginning for science to take root and grow.

Here in late summer, planning is well underway for our November 5 Annual Meeting in Broken Arrow and for the fall field meeting in Roman Nose State Park. I will be encouraging all section leaders of OAS this fall, as classes begin, to reach out and bring their best students and colleagues to the Technical Meeting in Broken Arrow. Making plans at the beginning of the semester to have abstracts ready by mid-October and recruiting new faculty to speak....all are keys to success.

When we have a conversation about science across the state that includes science faculty from every campus, institute, agency and the corporate sector, graduate students and undergraduates in every field, we will take a big step in lifting science across Oklahoma.

There are signs that the comprehensive research universities in the state are turning with renewed focus to science education and are looking to OAS as one vehicle to push STEM teaching.

Science, it is a rising tide that lifts all boats. This is our rising tide. The great pendulum of our culture is beginning to swing back to the rational mind. Let's roll up our sleeves, reach out to our colleagues and get going.