End-of-Days Danger

If 2012 marks the start of the apocalypse, it will be our own fault, not nature’s or God’s

BY LAWRENCE M. KRAUSS

I don’t know how many e-mails I have received from children who are terrified that 2012 will somehow involve the end of life as we know it, all because of an unfounded fringe religious prophecy that has received mass-market exposure with the release of a recent Hollywood movie. I have tried to reassure those children (and not a few adults) that this date represents nothing more cosmically special than the year of the next presidential election.

Having said that, however, I just realized there might be a genuine connection between 2012 and an end-of-days menace!

On the conclusion of the less than stellar Copenhagen Conference on Climate Change in December, ex-governor and former vice presidential candidate Sarah Palin, who many think may make a White House run herself in 2012, twittered the world with the following:

“arrogant&naive2say man overpowers nature”

Although the Copenhagen conference could have been criticized on many fronts, it is hard to imagine that Palin’s remarkable statement represents anything other than a misplaced religious end-of-days argument of the type that asserts confidence in human dominion over the earth—and that God will ensure the planet remains fine in the face of human progress, until God decides to end it all and the worthy ascend to heaven.

As we look around the world, there is hardly a place where humans have not “overpowered nature,” if I take that phrase to mean affecting the large-scale features of our natural environment. Global transportation allows me to circumnavigate the globe in less than three days with jet planes. Modern medicine has eradicated the once unstoppable scourge of smallpox, allowed in vitro fertilization and freezing of embryos for women who would otherwise be barren, and developed prenatal surgical techniques for correcting fetal heart defects in the womb. We are living in an era with one of the greatest extinction rates in recorded history, which began with wholesale slaughter of entire species for food and has progressed as we have dismembered a large part of what was the dominant incubator of life on earth, the rain forests. The nature of commercial fishing, something the ex-governor should know about given the importance of the Alaskan fishing fleet, has changed as we have literally fished out whole regions of the world’s seas.

These are just a few obvious examples, but because the future Fox News pundit was talking about climate change let’s consider something that is indisputable: the measured rise of carbon dioxide in the earth’s atmosphere is numerically consistent with that predicted from the output of human industrial activity.

This fact is not in dispute. What is in dispute, apparently by Palin, is whether this rise will have any effect on “nature.” It already has. Forget the change in temperature over the past decades. Increased carbon dioxide in the atmosphere boosts, by gas-liquid equilibrium, the amount of carbonic acid in the ocean, which in turn lowers the marine pH level. And measurements of the pH level in the ocean over the past two decades show precisely the slow reduction that is expected from such a rise in carbon dioxide. As that pH level continues to fall on its present trajectory, it will eventually reach a point where calcium carbonate—a dominant component of shelled animals and coral reefs—will dissolve in seawater.

One should be free to question the detailed nature of model predictions about the future, but the evidence that humans can, do and will continue to “overpower” nature is so incontrovertible that to deny this fact is to live in a fantasy world. That reality is what we most need to grapple with to address environmental challenges and stimulate the economies of both the developing and the developed worlds. The thought that anyone whose beliefs could so override the evidence of those realities might be a serious contender for the White House scares me more than any Hollywood disaster movie could.

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