

Elevating Science, Elevating Democracy
By DENNIS OVERBYE January 27, 2009 The New York Times

All right, I was weeping too.

To be honest, the restoration of science was the least of it, but when Barack Obama proclaimed during his Inaugural Address that he would “restore science to its rightful place,” you could feel a dark cloud lifting like a sigh from the shoulders of the scientific community in this country.

When the new president went on vowing to harness the sun, the wind and the soil, and to “wield technology’s wonders,” I felt the glow of a spring sunrise washing my cheeks, and I could almost imagine I heard the music of swords being hammered into plowshares.

Wow. My first reaction was to worry that scientists were now in the awkward position of being expected to save the world. As they say, be careful what you wish for.

My second reaction was to wonder what the “rightful place” of science in our society really is.

The answer, I would argue, is On a Pedestal — but not for the reasons you might think.

Forget about penicillin, digital computers and even the Big Bang, passing fads all of them.

The knock on science from its cultural and religious critics is that it is arrogant and materialistic. It tells us wondrous things about nature and how to manipulate it, but not what we should do with this knowledge and power. The Big Bang doesn’t tell us how to live, or whether God loves us, or whether there is any God at all. It provides scant counsel on same-sex marriage or eating meat. It is silent on the desirability of mutual assured destruction as a strategy for deterring nuclear war.

Einstein seemed to echo this thought when he said, “I have never obtained any ethical values from my scientific work.” Science teaches facts, not values, the story goes.

Worse, not only does it not provide any values of its own, say its detractors, it also undermines the ones we already have, devaluing anything it can’t measure, reducing sunsets to wavelengths and romance to jiggly hormones. It destroys myths and robs the universe of its magic and mystery.

So the story goes.

But this is balderdash. Science is not a monument of received Truth but something that people do to look for truth.

That endeavor, which has transformed the world in the last few centuries, does indeed teach values. Those values, among others, are honesty, doubt, respect for evidence, openness, accountability and tolerance and indeed hunger for opposing points of view. These are the unabashedly pragmatic working principles that guide the buzzing, testing, poking, probing,

argumentative, gossiping, gadgety, joking, dreaming and tendentious cloud of activity — the writer and biologist Lewis Thomas once likened it to an anthill — that is slowly and thoroughly penetrating every nook and cranny of the world.

Nobody appeared in a cloud of smoke and taught scientists these virtues. This behavior simply evolved because it worked.

It requires no metaphysical commitment to a God or any conception of human origin or nature to join in this game, just the hypothesis that nature can be interrogated and that nature is the final arbiter. Jews, Catholics, Muslims, atheists, Buddhists and Hindus have all been working side by side building the Large Hadron Collider and its detectors these last few years.

And indeed there is no leader, no grand plan, for this hive. It is in many ways utopian anarchy, a virtual community that lives as much on the Internet and in airport coffee shops as in any one place or time. Or at least it is as utopian as any community largely dependent on government and corporate financing can be.

Arguably science is the most successful human activity of all time. Which is not to say that life within it is always utopian, as several of my colleagues have pointed out in articles about pharmaceutical industry payments to medical researchers.

But nobody was ever sent to prison for espousing the wrong value for the Hubble constant. There is always room for more data to argue over.

So if you're going to get gooey about something, that's not so bad.

It is no coincidence that these are the same qualities that make for democracy and that they arose as a collective behavior about the same time that parliamentary democracies were appearing. If there is anything democracy requires and thrives on, it is the willingness to embrace debate and respect one another and the freedom to shun received wisdom. Science and democracy have always been twins.

Today that dynamic is most clearly and perhaps crucially tested in China. As I pondered Mr. Obama's words, I thought of Xu Liangying, an elderly Chinese physicist and Einstein scholar I met a couple of years ago, who has spent most of his life under house arrest for upholding Einstein's maxim that there is no science without freedom of speech.

The converse might also be true. The habit of questioning that you learn in physics is invaluable in the rest of society. As Fang Lizhi, Dr. Xu's fellow dissident whose writings helped spark the 1989 Tiananmen Square demonstrations and who now teaches at the University of Arizona, said in 1985, "Physics is more than a basis for technology; it is a cornerstone of modern thought."

If we are not practicing good science, we probably aren't practicing good democracy. And vice versa.

Science and democracy have been the watchwords of Chinese political aspirations for more than

a century. When the Communist Party took power it sought to appropriate at least the scientific side of the equation. Here, for example, is what Hu Yaobang, the party's general secretary, said in 1980. "Science is what it is simply because it can break down fetishes and superstitions and is bold in explorations and because it opposes following the beaten path and dares to destroy outmoded conventions and bad customs."

Brave words that have yet to be allowed to come true in China. Mr. Hu was purged, and in fact it was to mourn his death that students first began assembling in Tiananmen Square in 1989.

Dr. Fang got in trouble initially because he favored the Big Bang, but that was against Marxist orthodoxy that the universe was infinitely unfolding. Marxism, it might be remembered, was once promoted as a scientific theory, but some subjects were off-limits.

But once you can't talk about one subject, the origin of the universe, for example, sooner or later other subjects are going to be off-limits, like global warming, birth control and abortion, or evolution, the subject of yet another dustup in Texas last week.

There is no democracy in China, and some would argue that despite that nation's vast resources and potential, there will not be vigorous science there either until the Chinese leaders take seriously what Mao proclaimed back in 1955 and then cynically withdrew: Let a hundred flowers bloom, let a hundred schools of thought contend.

In the meantime I look forward to Mr. Obama's cultivation of our own wild and beautiful garden.