

The Decline of Science — and Our Society

[This is the transcript of the CARE (Citizens Alliance for Responsible Energy) teleconference, held on 6/23/10. In a few days there will be an audio version (including the Q&A portion that followed my comments) at <<<http://www.responsibleenergy.org/audiocenter/conferencecalls.asp>>>.]

Thank you Marita Noon (CARE Executive Director) for sponsoring this talk. I also want to **sincerely** thank everyone who has taken time out of their busy schedules to participate here today... I'm going to begin with a Thomas Paine quote: "He who dares not offend, cannot be honest."

After being heavily involved with environmental issues for some thirty years, it is **very** clear to me that we have an epic struggle going on here: **scientists vs lobbyists**. *This is the fundamental conflict of our time, and cuts across every technical matter we are facing.*

So far the scientists are losing — and it's close to a rout.

Real Science is an exacting business. *Politicians, on the other hand, want approximations.*

Real Science takes considerable time and effort. *Politicians want to cut to the chase.*

Real Science requires a strong foundation to build on. *Politicians say just get something it up.*

Real Science is based on empirical evidence. *Politicians are enamored with computer models.*

Real Science is anathema to lobbyists. *Politicians are closely aligned with lobbyists.*

So the question is, which side do we *really* stand on here: science or politics?

Last week *NYT* journalist Andrew Revkin asked me and a few other scientists this question. "If you were at a White House luncheon and were given a minute to express your views about the technical issues of the day, what would you say?"

I wrote him back that my statement to the White House would be the following:

"We do have serious environmental and energy issues. We also have the technological and economic resources to solve these.

Our greatest impediment is that we have been deluded by those promoting self-serving agendas into following the sirens' call. To get back on track we simply need to employ the **scientific method**.

"All ideas and potential solutions should be welcomed with open arms. However, it will be entirely the responsibility of the promoters **to prove** (with independent, comprehensive, transparent, empirical evidence) that their proposal makes **technical, economic** and **environmental** sense. This would be required before their solutions are mandated on the public."

That's it... Andrew's response was: "Well stated! Thanks."

My point was that this is NOT what is happening now, as science has been relegated to a back-of-the-bus status.

As an example, **none** of this has been done for wind power.

In every direction we look, Science is under assault. The main reason for this conflict is that Science is the enemy of lobbyists. After all how can one successfully market a product or idea if they are constrained to adhere to the facts? *Imagine that!*

Lobbyists have been successful in undermining science *via* death by a thousand stings. Terminology dilution is part of their effort at promoting pseudo-science (a.k.a. consensus science. *Nota bene*: Science is **not** based on consensus.)

Terminology, in science, is exceptionally important. It is an integral part of this exacting business as it is a critical component for constructing a strong foundation — i.e. one that will withstand the test of time.

"Renewable" energy, for instance, is a term coined and promoted by lobbyists. There is no true scientific definition of the phrase "renewable energy." Well aware of this, lobbyists have worked diligently to give the impression that "renewable energy" is a scientific concept. **It's not!**

Indeed, due to their incessant promotion this term has become well known in the popular vernacular, and in political circles — however that does not qualify it as a *scientific* term.

The reality is that the understanding of "renewable energy" by the public is so broad and vague, that a statement like "I support renewable energy" is technically meaningless.

It's akin to saying "I like sports." Does that mean then that I'll see you at a croquet match, or a rugby tournament, or a water polo event, etc.? No? Then why not? Oh you really just like **SOME** sports — not **ALL** sports.

It's entirely acceptable to use such vagaries in general conversation — but energy and environmental issues are very technical matters that have a much different standard for accuracy, **particularly when such critical issues as national energy policies are at stake.**

Of course the lobbyists don't want us to look at this business in more than a cursory manner. As far as they are concerned, *the more superficial the better.* Coincident with this they are hopeful that we are very casual in our phrasing.

The payoff for them is that when we use such general terminology, we don't segregate between good and bad. In other words, *the bad are lumped in with the good.* That is exactly their marketing strategy in getting us to buy a pig in a poke — like wind energy.

Consider what *Wikipedia* says: "Renewable **energy** is **energy** which comes from **natural resources** which are naturally replenished." Well, fossil fuels like gas, oil and coal fit that definition too!

Consider that some 29 states have enacted a "Renewable Portfolio Standard." Despite the fact that these were all initially heavily influenced by lobbyists, these 29 states do NOT define "renewable energy" the same way. Clearly this is further evidence of its political roots.

Using the popular conception of "renewable energy" covers an extremely diverse set of energy sources, ranging from nuclear power to biomass. Some of these are good, worthwhile sources of energy, while others are not. So, such assertions like "I support renewable energy" is pure political posturing, not a scientifically sound statement.

When you start with such vagaries what is the result? Put another way, do these RPS's do any good? Hint: remember that they were written by lobbyists. Despite Global Warming being the original primary driver for RPS's, not a single state has any requirement that a qualifying "renewable" source **has to prove that it saves any CO2 whatsoever.** Hmmm.

As a scientist I like to get to the core of the matter. In this case identifying the fundamental reasons for this erosion of science is of great interest to me.

After studying it for some time I believe that the three primary causes are: **our education system, computer models,** and the **Internet.** I'm quite time limited here so let me just say a few words about each.

Cause #1: Our Education System.

Our academic institutions are failing us, big time. In my view the main objective of our education process should be very simple: **to produce adults who have mastered the ability to think critically.**

Unfortunately, the evidence indicates that exact opposite of this is actually happening. We are producing lemmings who are programmed with certain approved agendas. It's interesting that we can see this as a fault of the curriculum of some mideastern countries, but not in ourselves.

Today we have the diminution of the sciences as a core component of the curriculum, **plus** grade inflation. *What a one-two punch!* From what I have seen this is mainly due to an emphasis on promoting the psycho-babble called "self esteem." The consequences of this degradation are profound.

A leading educator recently wrote: "Generally, I think people do not understand that science is **a way of approaching problems**, rather than **a body of knowledge**." When their training in science is deficient "they are often unable to assess claims and counter claims as they make choices on critical issues that face them as citizens."* I couldn't agree more.

Compounding this problem, many of our higher levels of academic institutions have become addicted to grants. To get the maximum amount of money (which mostly comes from the government) they need to play political ball. This means that the product produced, a study, isn't about **critical thinking** — but rather about supporting the spiel that the emperor's clothes are just spiffy.

Lobbyists are desperate to get their pet projects any kind of a stamp of approval, and have focused heavily on securing academic endorsements. I'm sorry to say but, in my opinion, even the once esteemed *National Academy of Sciences* has become corrupted in the process. What once was a gold seal of approval is now little more than yellow cardboard.

Cause #2: Computer Models.

As a person who has hand-written some 100,000 lines of computer code, I know a bit about computer programming. As such I'm extremely concerned about our use of computer models. On the surface, a computer model holds three main enticements. The first is that it represents a shortcut. **We're addicted to the quick way**. For instance, we don't like having to take the time and effort to do real world assessments — so, *just model it*.

The second big attraction is that computer models give us the **illusion** that we are able to predict the future. Who wouldn't like do that? Unfortunately we are losing our ability to discern between reality and a mirage.

The third killer selling point is that marketers (lobbyists) can imbed **hidden sales messages** in what appears to be a science based package. Wow! Put another way, computer models are comprised of *unidentified* assumptions — many of them *unproven*. But we, the marks, know none of this.

This situation reminds me of someone being given a new workshop tool as a birthday gift. Something that they have been able to live without for 50 years all of a sudden becomes a key element in every project they have. That's where we are now with computer models: *significant over use*.

Cause #3: The Internet.

A unique fact of our life today is that the internet has facilitated the rapid and continuous dissemination of misinformation and disinformation by those promoting nothing more than self-serving interests. Within a few minutes a message can be sent to a million people.

Lobbyists are acutely aware of this awesome power and have launched an unprecedented “marketing” assault on citizens and politicians. Lobbyists are also aware of the lack of critical thinking skills of the average citizen — and fully exploit that deficiency. This is what advertisements claiming wind energy to be “free, clean and green” are all about.

Their motivation is simple: **greed & power**. Yes that has always been around, but today we have the perfect storm.

We now toss around “Trillions of dollars” like these are some reasonable amounts! These staggering and unparalleled disbursements have (not surprisingly) spawned the most sophisticated and aggressive breed of profiteers that we have **ever** encountered in our history! Beware!

So what to do?

As a physicist and longtime environmental advocate, I know that it's critically important that this onslaught be countered.

This is actually a Public Relations war. Unfortunately, scientists are not typically good at Public Relations.

I'm trying to do my little part, like today, as I believe that if enough citizens are educated, that they will speak up and **demand** that their representatives do the right thing.

I have given free community presentations in numerous northeastern states, and the message is that we need to get back to the roots of science — which is the scientific method.

I've posted my presentation online, and it's at **EnergyPresentation.Info**. I hope that you will look closely at that, and send me any suggestions for improvements.

I could go on in considerably more detail here, but let's hear your views and solutions. The bottom line is that right now our energy and environmental policies are being determined by lobbyists for *profiteers* and *political opportunists*. That isn't good for citizens or our society.

I began with Thomas Paine and would like to end with him. A lesser known but oh-so-pertinent quote of his I really like is this: "When men give up the privilege of thinking, the last shadow of liberty leaves the horizon."

I say amen to that!

What do you think?

*<<<http://www.jyi.org/features/ft.php?id=541>>>