

Not in My Back Yard

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The Epi Conspiracy

August 15th, 2010 [Jan de Leeuw](#) [Leave a comment](#) [Go to comments](#)



Lois Henry and a gaggle of libertarians on the barricades for non-conformity and academic freedom.

Read this first.

<http://www.bakersfield.com/news/columnist/henry/x1415295919/Independent-thought-not-wanted-at-UCLA>

Permit me to add some comments to Lois' inspiring and thought-provoking column.

- I don't know why James Enstrom "lost his job". He was not a tenured faculty member. He was a largely self-funded Associate Research Professor, of which there are quite a few in the Medical School.
- That universities maintain air pollution is dangerous **because** they want to ensure a continuous influx of research grants is a gratuitous and offensive insinuation. It should be supported by hard evidence and not just by innuendo. It's what the libertarians and right wingers also say about global warming research and what they used to say about cigarette smoking.
- Epidemiological observational research is fraught with difficulties, and each individual study can be easily criticized on multiple grounds.
- As with global warming research, the overwhelming consensus is that PM-2.5 is bad for your health (and thus influences mortality). The fact that the effects may be weak (who knows) does not make the studies

<http://www.cuddyvalley.org/blogs/nimby/?p=446>

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unimportant.

- Jim Enstrom has a single PM-2.5 study in a single selected CA population. It is easy to find many, many studies from larger US samples, from European countries, from Australia, and so on, that do find detrimental PM-2.5 effects. Because they contradict Enstrom's study this can only be because there is a left-wing conspiracy of grant-hungry pseudo-scientists.
- Enstrom's "Scientific Integrity Institute", at <http://www.scientificintegrityinstitute.org/> likes to compare his situation to those of Russian geneticists under Stalin/Lysenko. That is grotesquely overblown and melodramatic, of course.
- For your reading pleasure:

[http://www.sourcewatch.org/index.php?title=James E. Enstrom](http://www.sourcewatch.org/index.php?title=James_E._Enstrom)
[http://www.sourcewatch.org/index.php?title=James E. Enstrom in his own words](http://www.sourcewatch.org/index.php?title=James_E._Enstrom_in_his_own_words)
<http://www.smokersclubinc.com/modules.php?name=News&file=article&sid=4191>
<http://www.no-smoke.org/document.php?id=333>

What can I say ? Where there is smoke, there is fire. Pun intended.

- That Enstrom's work "isn't about being politically correct, it's about honest research and being faithful to the science" may be true. But the other side has as much reason for saying the same thing. In fact, if science is cumulative and based on consensus between informed researchers, then the other side has a better case.
- I happen to know Beate Ritz, and one of my students is working with her data. She is an excellent researcher, and handles spatial, temporal, demographical confounders in air pollution impact studies as well as can be done. For me, her opinion counts for something.
- That Enstrom is out of step with the rest of his department can be explained either as "not politically correct" or as "poor quality science". Lois believes the first, without a shred of evidence, except that some people did not return her phone calls.
- It would be interesting to look into the political and financial connections of James Enstrom, Stan Young, Joel Schwartz, Robert Phalen, Matt Malkan. None of these scientists, by the way, have a PhD in Environmental Health Sciences or Epidemiology. Such a background study might explain "editorializing" disguised as science on that side. And clearly epidemiological studies, with weak effects and infinitely many confounders, lend themselves to this type of controversy. See, for example, the review at <http://ehp.niehs.nih.gov/docs/2003/111-3/newbooks.html>. As in other situations, it is never a bad idea to follow the money, or (what often amounts to the same thing) the ideology.
- Of course being libertarian, being funded by tobacco and transportation interests, or working for a right-wing think tank, is not scientific misconduct. and by itself does not prove that one does bad research. Not even the fact that the California Dump Truck Owners Association quickly jumps to your defense is a disqualification of your scientific work. See <http://killcarb.org/2010081201-enstrom.html> (once again with the signature of Stan Young between the assorted truckers).
- Lois' article is biased and buys, basically without questioning, the usual libertarian/right wingnut stories. That puts her in the same category as Sean Hannity and his "fish vs people" nonsense. We all dislike CARB because it is an institution that generally fails us, and is built on influence peddling and obnoxious compromises, but that dislike should not make us paranoid.
- The California Dump Truck Owners Association, James Enstrom, Robert Phalen, and Lois Henry make it abundantly clear that they oppose the CARB diesel regulations because of the (hypothetical) impacts on the California economy. This is the same argument as is used in favor of mountain top removal mining, deep sea oil drilling, shale gas exploration, asbestos plants, corn oil distilleries, waste dumps, unlimited Delta pumping, the Peripheral Canal, wolf delisting, second hand smoke, unbridled sprawl, privatizing water banks, and deregulating the mining and financial industries. In most cases these arguments are blatantly self-serving, and can be simply summarized as **"You cannot take what is mine and give it to somebody else, because I own it, I have a right to own it, and I happen to own a lot of it. Here is XXXXXX dollars, now go away"**.

If I can find the time, I will read the Enstrom 2005 paper and see what the fuss is all about. Although generally reading epidemiological research is statistically rather depressing. But the proof of the pudding, I guess, is still in the eating.

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How Much is Scientific Integrity These Days ?

August 31st, 2010 [Jan de Leeuw](#) [Leave a comment](#) [Go to comments](#)

Lois Henry has [another *Bakersfield Californian* column](#) on the Enstrom affair. The famed Enstrom 2005 study, that has been ignored and mauled and misrepresented by unholy coalitions of researchers and agencies of all levels, says in its footnote:

The extended mortality follow-up and analyses presented in this article have been funded by the Electric Power Research Institute (EPRI).

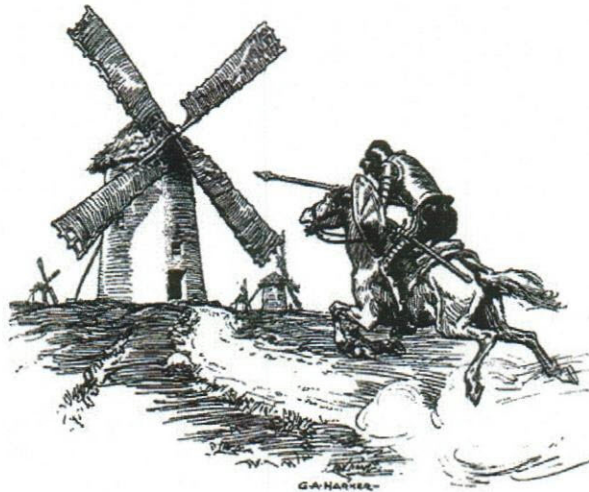
EPRI is a membership organization “*whose mission is to discover, develop, and deliver advances in science and technology for the benefit of electric utilities, their customers, and society.*” They fund the AIRS research on PM air pollution, but it is unclear to me what role peer review and what role the benefits of electric utilities play in their research. I tried to download the relatively recent “*Impacts of Particulate Matter on Human Health: An Updated Summary of EPRI Research*”, but the website informed me that the product was only available to funding members, and to members of the public that paid \$ 950. In the footnotes to Enstrom’s earlier studies on the non-significance of secondary tobacco smoke inhalation effects it says, even more surprisingly,

This analysis has been funded primarily by Philip Morris USA.

Of course the funding source does not per se invalidate the research. If it did almost no drug research would be valid. In the same way, the fact that Enstrom’s defenders are either representatives of the trucking industry, right-wing libertarians, or politicians who want to score points with major campaign contributors, does not invalidate his research.

What makes Enstrom’s results problematic is the worldwide scientific consensus, which is overwhelmingly in support of serious PM-2.5 health effects. And the idea that PM-2.5 effects are different in California than in other parts of the world strikes me as peculiar. The idea of representing health effect by relative risk ratios, which tend to be positive but statistically either borderline significant or non-significant is suspect (although standard epidemiological practice). If one prefers estimation to testing, which I do, then a relative risk of 1.04 may very well be significant from the public health point of view, and it fact it will translate into thousands of deaths given a large enough exposure. One side reports non-significant risk ratios, the other side reports large extrapolated mortality numbers. Both sides are trying to make a case. But one must always be careful to distinguish *statistical significance*, which depends on the data but also on the replication framework, the model and the analysis technique, with

actual *practical significance*, which in this case depends on how one weights public health considerations and the interests of electric utilities and the trucking industry. If public health considerations are given enough weight then a single premature death is enough to ban all diesel trucks.



Rogue Scientist attacking the Scientific Establishment.

The PM situation is really very much like the global warming debate. There is an overwhelming scientific consensus that man-made climate change is taking place, and that it is threatening to become an unstoppable destructive force, especially in places where poor people and people of color live. The only way to explain the unprecedented scientific consensus, if for whatever reasons one does not believe in climate change, is to assume there is a conspiracy going on. Those are the only two possible alternatives. Same again for evolution versus intelligent design.

Here is the scenario. There are some heroic rogue scientists that stand up to the scientific establishment which is only interested in keeping their large tax-payer funded grants coming in. Fortunately there are some private philanthropic institutions, such as Philip Morris or EPRI or the Pacific Legal Foundation or the Discovery Institute or the Koch Brothers or Exxon-Mobile that are willing to support these idiosyncratic dare-devils. Again, this does not invalidate Enstrom's (2005) results and the very few who agree with him. But, on the other hand, we may also have an example here of the industry-funded paranoia that is so typical of both ancient and modern anti-scientific rhetoric. And the public, of course, loves and admires Lone Rangers fighting the establishment — perhaps because overflowing with this love and admiration relieves them of the responsibility to fight the establishment themselves. From where I stand the climate change deniers, the intelligent design people, and the PM health effects minimizers look a lot like a straightforward pseudo-scientific version of the Tea Party. With the same funders.

Since I am a statistician, I must of course defend my own industry, which is to design, to collect, to analyze, to summarize, and to present data obtained in quantitative research. You have to believe me if I say that most observational epidemiological research is only marginally related to modern statistics, and is closer to economic forecasting, structural equation modeling, and other forms of black magic. Nevertheless the never-ending stream of well-funded, large-scale, weak-effect, non-reproducible, fleeting-impact studies of this kind is interesting from a sociology of science point of view. Interesting enough to have a graduate seminar looking at the various research outcomes in PM health impact research next year.