

EDITORIAL

Darn! Those Aren't the Data I Wanted

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Consider the plight of Dr. Robert P. Liburdy. On 17 June 1999, the Office of Research Integrity, Department of Health and Human Services, found that he "... engaged in scientific misconduct... by intentionally falsifying and fabricating data and claims about the purported cellular effects of electric and magnetic fields (EMF) that were reported in two scientific papers..."¹ Shortly thereafter the *New York Times* picked up the story and splashed it all over the front page.² Surely this is any practicing scientist's worst nightmare: to be publicly humiliated first by the federal government and then by the Nation's most influential newspaper.

Exactly what does this episode have to do with environmental practitioners? Actually a great deal. Dr. Liburdy was avidly engaged in a topic of immense importance to literally billions of people: *Do the electromagnetic fields which engulf us cause cancer?*

Much rides on the answer to this question. At the very least, a positive answer might imply that electric utilities would no longer be allowed to run high voltage lines in ways that exposed people, especially children, to strong electromagnetic fields. At a more extreme level, a positive answer might imply that people everywhere might have to look very soberly at turning on any electrical device. And all of this is without even consid-

ering the question of effects on other species and biodiversity.

Dr. Liburdy's results in 1992 purported to link the ability of calcium to cross a cell's surface membranes, which in turn could affect various cell functions. Hence the results were considered important in laying out a case that electromagnetic fields may lead to cancer. Truly, the matter raised important issues for almost every environmental professional.

A number of lessons and points for further work stem from this episode:

- First, and perhaps most important, what is the significance for calcium transport of the fact that officials and peers of Dr. Liburdy judged that he engaged in fabrication and falsification of data? Dr. Liburdy, according to the *New York Times*, still holds to his conclusions if not all of his data. The fact that one scientist may have fudged, however, does not necessarily mean that nothing interesting occurs. We will have to watch for further work, and *judge it on its own merits*.
- If there is a tragedy to this story (other than Dr. Liburdy's personal situation), it is that environmental concerns in general may lose credibility. This is not to say that every environmental alarm raised is true, but the past three decades have demonstrated that many activities formerly taken for granted as "safe" are now legitimately discouraged or prohibited based on scientific evidence of unacceptable risk or damage. One has only to think of lead paints, DDT, and the indiscriminate filling of wetlands to realize that environmental concerns have been found to be "true," despite initial heavy opposition from interested parties. If the allegations against Dr. Liburdy are accurate, then he has done immense disservice to environmental concerns in general.
- Scientific fraud in general, especially in the frenetically competitive biomedical

sciences, has become sufficiently common in recent years to make the Office of Research Integrity a necessity. However, one should not lose sight of the fact that the federal government is immensely powerful and always remains a force capable of both good and mischief. The Office of Research Integrity itself in the past has been the target of serious, well founded charges that its staff acted overzealously and hounded research scientists who had no way of defending themselves against the power of the government. At the moment, we see no indication that Dr. Liburdy has been unfairly victimized; in fact the contrary seems to be true. Nevertheless, it is important to remember that bias can come from all players.

- Finally, I'm inclined to praise once again the simple principle encoded in NAEP's Code of Ethics: speak from an open-minded reading of the data, even when neither you nor your patrons nor your clients nor your allies like what they say.

In the long run, the job of protecting the environment is best served by keeping a level head and not being unwisely selective about data. After all, if electromagnetic fields really do cause cancer, then I personally will be quite unhappy, for all sorts of reasons. But I'd like to know. And if they don't, I will focus my efforts on greater risks. At the moment Dr. Liburdy seems not to have done anybody any good by, apparently, fiddling his data.

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¹ *Federal Register*, Vol. 64, No. 116, Thursday, June 17, 1999, pp. 32503-32504.

² William J. Broad, Data tying cancer to electric power found to be false, *New York Times* (National Edition), 24 July 1999, pp. A1, A8.