delinking weapons material disposition from the role of plutonium as an energy resource for the future. I was, however, surprised to see the chair of the National Academy of Science's (NAS's) Study on Management and Disposition of Excess Weapons Plutonium use the phrase "clear and present danger" in his letter. This was a catchy phrase generously provided by the NAS committee without justification. By repetition, the phrase seem to have acquired the status of truth. Yes, there are *potential* dangers of proliferation and safety associated with plutonium. These dangers have been well managed during the past 55 years, and they can be even better managed if state-of-the-art technologies are used, should society so desire. The solutions proposed by the U.S. Department of Energy for the disposition of excess plutonium will take time—maybe many decades. So it is not clear how they can be described as the solutions to a "clear and present danger."

K. K. S. Pillay
Chairman,
Isotopes and Radiation Division,
American Nuclear Society,
369 Cheryl Avenue,
Los Alamos, NM 87544, USA
E-mail: s_pillay@lanl.gov

Graduate Students' Rights

The News & Comment article "Grad students press for right to strike" by Constance Holden (29 Nov., p. 1461) includes the assertion that the desire for unions exists mostly among teaching assistants in the humanities and social sciences. This is true. Science graduate students have not generally been part of the union struggle.

At the University of Michigan, graduate student instructors (GSIs) are represented by the Graduate Employees Organization (GEO), the second oldest graduate union in the country. A majority of GSIs in physics, chemistry, biology, and biophysics are union members. They have been active in every aspect of union organizing and negotiations, including participation in our 2-day work stoppage last April.

GSIs are real employees of the university and perform 40% of the classroom teaching at Michigan. The university would not function adequately without our crucial services. We have fought for, and won, adequate health care, tuition waivers, and salary increases, and we would not likely have these benefits without the GEO.

Another group of graduate students, the research assistants, are not represented by the union here at Michigan, despite their important contributions. How much of the research in this country is performed by graduate students? I'm not sure, but it's usually at low pay and with few benefits.

Graduate students in any field face an uncertain future, and many come to feel like undervalued laborers in the scholarly enterprise. Graduate students from all fields recognize that it is crucial to have the power to negotiate for the conditions of their employment.

Eric Dirnbach
Graduate Student in Biophysics,
University of Michigan,
300 North Ingalls,
Ann Arbor, MI 48109, USA
E-mail: erdirn@umich.edu

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EMF Statement

I was somewhat astonished at the apparent suggestion by Keith Florig (Letters, 29 Nov., p. 1449) that the electromagnetic field (EMF) committee of the National Research Council should have reported the conclusion that "no conclusive evidence shows that EMFs are safe" because the proposed conclusion is void of content. It is true for all *x*'s that "no conclu-

sive evidence shows that *x*'s are safe." This is especially the case given no statement of quantity, density, individuals, circumstances, and so forth.

Robert A. Frosch
Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University, Boston, MA 02163, USA
E-mail: bfrosch@nas.edu

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Combining Expert Opinions

Readers of the article "A new way to ask the experts: Rating radioactive waste risks" by Richard A. Kerr (News & Comment, 8 Nov., p. 913) may be left with the impression that the elicitation and mathematical combination of expert opinion is a technique invented by earth scientists. In fact, this method has been in use for several decades. Notable applications of the formal elicitation of probabilities from experts in the 1970s include the Rasmussen report on nuclear reactor safety (*1*), the National Academy of Sciences study of the depletion of stratospheric ozone (*2*), and the National Defense University study of global warming (*3*).

Furthermore, there is a substantial body of social science literature on the elicitation and combination of expert judgment. Two conclusions can be drawn from experience and psychological research on elicitation of probability judgments: (i) if done properly and with care, it can be a valuable tool for quantifying uncertainty, and (ii) the apparent simplicity of the technique hides methodological pitfalls that can lead to misleading results. Alternative question-framing and response modes are just two examples of the types of methodological choices that can influence the elicited probabilities. Just as in earth sciences or biomedical research, appropriate background and training are necessary for researchers who conduct expert judgment studies.

Hal R. Arkes
President, Judgment and Decision Making Society, Department of Psychology, Ohio University, Athens, OH 45701, USA
Jeryl L. Mumpower
Thomas R. Stewart
Center for Policy Research, University of Albany, State University of New York, Albany, NY 12222, USA
E-mail: t.stewart@albany.edu

References

1. R. J. Rasmussen *et al.*, *Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants* [NUREG-75/014 (WASH-1400), Nuclear Regulatory Commission, Washington, DC, 1975].
2. U.S. National Academy of Sciences, *Environmental Impact of Stratospheric Flight: Biological and Climate Effects of Aircraft Emissions in the Stratosphere* (National Research Council, Washington, DC, 1975).
3. *Climate Change to the Year 2000* (National Defense University, Washington, DC, 1978).

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Estonian Physicist: Active and Productive

Richard Stone's article "Estonian researchers lead the way in science reform" (News & Comment, 4 Oct., p. 29) gives a realistic picture of recent developments in science administration in Estonia. We are encouraged to continue in this direction.

However, the article represents Karl Rebane, the former president (1973–1990) of the Estonian Academy of Sciences (EAS) and member of the Russian (formerly Soviet) Academy of Sciences, a physicist of international reknown, as merely an aged enemy of Estonian scientific reform. This is definitely not true.

Rebane's contribution to physics as well