

## SCIENCE'S COMPASS

have to stop building cars. And all of the compliant companies shipping parts to GM will lose an important customer.

In terms of complexity theory, an interesting question is, What fraction of the companies in an interconnected society need to fail in order to cause the failure of nearly all of the organizations in the society? The Gartner Group has estimated that in many countries around the world, 50% or more of the companies in the country will have at least one mission-critical system failure. These countries include Russia, China, India, Indonesia, Japan, Germany, Turkey, Saudi Arabia, South Africa, Venezuela, and Argentina ([gartner5.gartnerweb.com/public/static/aboutgg/press-rel/testimony1098.html](http://gartner5.gartnerweb.com/public/static/aboutgg/press-rel/testimony1098.html)). That is a lot of countries, a lot of people, and a lot of supplies shipped to the United States.

Also, according to the Gartner Group, the countries most prepared for dealing with the year-2000 computer crisis include the United States, the United Kingdom, Canada, Australia, and the Netherlands. In these countries, 15% of companies are expected to have at least one mission-critical system failure. Which societies will be least affected or will recover most quickly—less-developed societies with less dependence on

computers and automated equipment or advanced societies that have been working hard to repair date-sensitive equipment?

Another "complexity" issue involves the many chemical plants, refineries, nuclear reactors, and pipelines we have constructed. All facilities that handle hazardous materials are designed with back-up systems. How many programmed logic controllers within these facilities need to fail in order to cause a spill? Will some societies shut down their dangerous equipment and others not?

It seems that we are about to witness an "autopsy" of modern society. As one system or company fails, we shall learn what other systems, companies, and countries depend on it. The year ahead will present unique opportunities for education, research, and public service, as we help the public understand what we are experiencing.

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### The Web and Conflict of Interest

The role of ethics-oriented Web resources in scientific education and research has grown remarkably, as noted in an item in

NetWatch ("Weighing in on bioethics," 23 Apr., p. 551). This brief piece presented a helpful description of the University of Pennsylvania Health System Bioethics Internet Project. As Project Director of that site, I would like to clarify, however, the following statement attributed to me: "Some bioethics sites are funded by large companies, but the center is independent. In bioethics, conflict of interest is everything."

In fact, in an interview, I noted that our site has been funded by several grants and contracts and that we actively seek relationships with companies and foundations that have an interest in bioethics. While I stressed the importance of lines of accountability and disclosure of funding for medical and scientific Internet materials, I in no way suggested that corporate funding taints bioethics on the Internet. I did not describe our Web site or center as "independent." No Internet site, bioethics center, or scientific lab can exist without support, and all funding comes attached to the purposes and contexts of the funding organization. Conflict of interest is important, and much of the work of bioethics consists of debating and making explicit conflicts of interest in science and medicine. However, support from industry

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need not lead to conflict of interest in bioethics. Responsible research and education is possible only when leaders form responsible partnerships with those whose interests they share, and disclose those partnerships fully.

Glenn McGee

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### Phytohormone-Independent Division of Tobacco Protoplast-Derived Cells: Retractions

In the article "Data in key papers cannot be reproduced" by Michael Balter (News of the Week, 26 Mar., p. 1987), it is said that I had no plans to publish retractions of papers that could not be reproduced in the journals in which they originally appeared. In fact, I want to stress that the first responsibility my colleagues and I in and outside the Max Planck Institute felt was to publish our results showing that the previously published data could not be reproduced by another, more objective, method. Therefore, the members of the in-

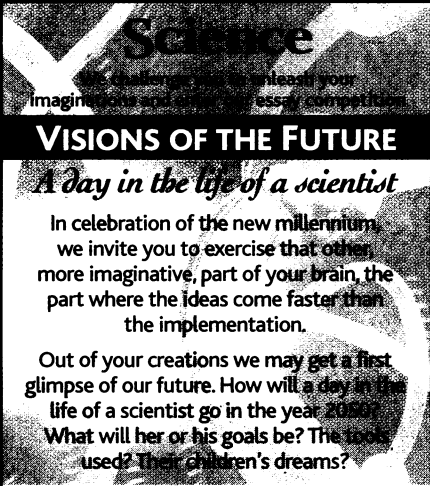
vestigating team decided to publish all further data reevaluating this fraudulent work as a regular scientific paper in *The Plant Journal (TPJ)*. After peer review and acceptance of the paper by *TPJ*, it was agreed with by the Editor-in-Chief, Dianna Bowles, that, after publication, short correction statements should be sent to individual journals, which could refer to the *TPJ* paper (1) for full details of new experiments confirming the irreproducibility of the protoplast assays in question. Since the paper in *TPJ* has now appeared (1), and in view of the new results, we hereby officially retract the results regarding phytohormone-independent division of tobacco protoplast-derived cells in the reports by H. Hayashi *et al.* (20 Nov. 1992, p. 1350) (2); H. Röhrig *et al.* (11 Aug. 1995, p. 841) (3); and K. van de Sande *et al.* (19 July 1996, p. 370) (4).

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2. H. Hayashi, I. Czaja, H. Lubenow, J. Schell, R. Walden, *Science* **258**, 1350 (1992).
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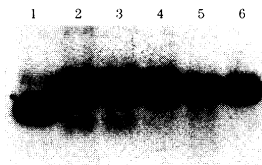
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