age in lots of multimillion units to the Agency for International Development is the fact that an affluent American woman buying the same product in a drugstore pays more than 100 times that price. Absent that latter market, a pharmaceutical company would go broke if it focused on the low-cost public-sector market for a new contraceptive. More realistic, though politically unpopular, incentives for industrial involvement have been suggested earlier (*1*).

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Monbusho and CREST Grants

The News & Comment article by Dennis Normile describing the awarding of CREST (Core Research for Evolutional Science and Technology) grants in Japan (3 May, p. 645) was instructive and timely. However, I was not quoted accurately. What I said to Normile was, "As a matter of policy, Monbusho [the Ministry of Education, Science, Sports, and Culture] Research Grants usually do not provide funds for hiring research personnel. In addition, because the Department of Neurology is a clinical department, it is difficult to hire permanent staff who hold only the Ph.D. degree. My goal for the Department of Neurology is to foster a high level of basic research while maintaining excellence in clinical areas. The CREST grant is therefore particularly welcome, since it will help meet this goal by allowing us to hire researcher who hold Ph.D.'s." Indeed, my research has received much-appreciated support from Monbusho in the past. The CREST grant is also welcome, however, as it is of surprisingly large size.

This, of course, does not mean I agree with the content or tone of the statement, "Monbusho typically doles out tiny grants to academic researchers."

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Response: I apologize for misinterpreting Kanazawa's remarks. I did not intend any criticism of Monbusho, but was trying to explain that previously available funding programs would not have allowed Kanazawa to undertake his planned research.

—Dennis Normile

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What Is Holography?

The Research News article "Two versions of holography vie to show atoms in 3D" by Steve Nadis (3 May, p. 650) discusses exciting new developments in x-ray analysis at atomic resolution (*1*). Is it accurate, however, to describe these methods as holography? Coherent illumination is not required; and the methods described allow one to reconstruct a representative unit cell when many unit cells are rotationally (although not necessarily translationally) aligned, rather than a point-to-point image of an object in the usual sense. Can it be applied to a single unit cell (that is, a noncrystalline specimen)? Issues which must be dealt with include fundamental considerations of radiation damage (*2*), even for materials science specimens, and of the desired condition $|a| << |r|$ in holography between a reference wave r and an object wave a (diffraction analysis considers $|a|^{**}2$).

The Research News article states, "x-ray

holography, like crystallography, cannot illuminate highly disoriented samples such as living biological tissue." This statement is not in agreement with findings (*3*) about the use of x-ray holography to image subcellular structures and microfabricated test objects at sub-100–nanometer resolution; holography with x-ray lasers has been demonstrated (*4*) as a step toward flash imaging of initially living specimens. Other publications report biological imaging at a resolution of less than 60 nanometers by x-ray holography and plans for extension of the method to frozen hydrated specimens and 3D reconstruction by means of holographic tomography (*5*). These experiments involve holography in the usual sense of the word: A nonrepetitive object is illuminated by a coherent beam, and a classical image is reconstructed by propagation of a reconstruction wave through the processed hologram.

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"Natural" Cancer Prevention

I would like to comment on the News & Comment article " 'Natural' cancer prevention trial halted" by Kim Peterson (26 Jan., p. 441), in which it is implied that there is "less anomalous" toxicity for beta carotene because of the findings of the Beta Carotene and Retinol Efficacy Trial (CARET) study (*1*) and the earlier Alpha-Tocopherol, Beta Carotene (ATBC) study (*2*) of smokers.

Albanes (the principal investigator in the ATBC study) made presentations at antioxidant meetings in Berlin (fall 1994) to that effect that the increased incidence of lung cancer in the beta carotene cohort occurred *only* in smokers who were also heavy alcohol abusers. In other words, the smokers on beta carotene who were not heavy drinkers did not have increased lung cancer. No harm occurred, but no benefit could be expected, because beta carotene is not a suitable therapy for thwarting the consequences of heavy smoking. A similar co-morbidity occurred in the CARET study, where vitamin A (conservatively estimated at 50,000 international units per day for 4 years, because the conversion of beta carotene to vitamin A is likely enhanced in the presence of vitamin A) was found to be toxic and to induce liver pathology not unlike that of alcohol damage.

The scientific literature (*3*) and the 1980 and 1989 U.S. Recommended Dietary Allowances make it clear that 50,000 international units of retinol per day for months is unwise and leads to vitamin A toxicity. Beta carotene has a record of safety in humans who have ingested large doses (150 to 300 milligrams per day) over 15 years to control the symptoms of the genetic disease erythropoietic protoporphyria. Ironically, in developing nations, vitamin A deficiency is a major problem in spite of carotenes in food (*4*).

There is a likelihood that autopsy materials are available for some of the subjects in the ATBC and CARET trials, and the funding agency would be remiss if at least the liver tissues were not examined. Fur-